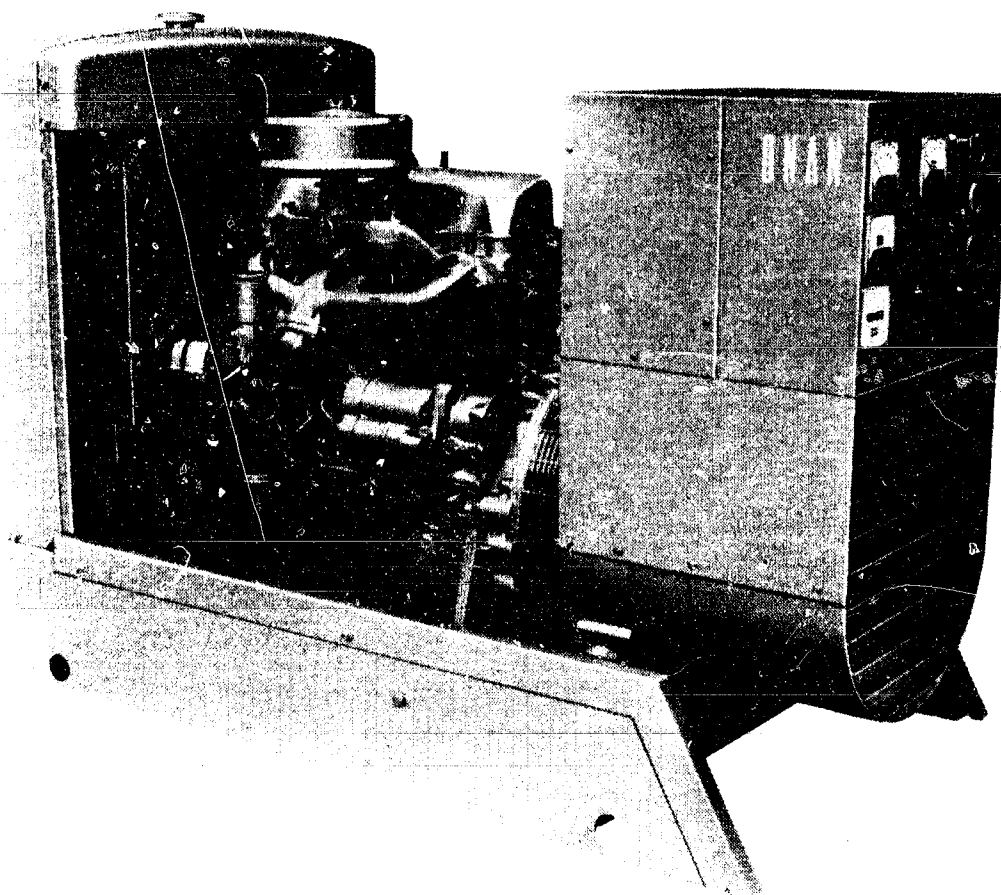


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has gaps in its page  
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have any numbers.  
We have chosen to  
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order that Acrobat  
assigns it.

# Parts Catalog

SERIES  
**DEH**  
GenSet



976-0220

Printed in U S A

6-80  
(SPEC B-J)  
Replaces  
5-77 (976-0306)  
(Spec H)

# GENERAL INFORMATION

## INSTRUCTIONS FOR ORDERING REPAIR PARTS

For parts or service, contact the dealer from whom you purchased this equipment or refer to your Nearest Authorized Onan Parts and Service Center.

To avoid errors or delay in filling your parts order, please furnish all information requested.

Always refer to the nameplate on your unit.

1. Always give the MODEL, SPEC NO. and SERIAL NO.

The diagram shows a rectangular nameplate with rounded corners and two circular mounting holes at the top. The Onan logo is prominently displayed at the top center. Below the logo is a large rectangular box labeled "MODEL AND SPEC NO.". Further down, the text "SERIAL NO." is followed by a smaller rectangular box for the serial number. The entire nameplate is shown with a slight shadow effect.

M-1149

For handy reference, insert "YOUR" nameplate information in the spaces above.

2. Do not order by reference number; always use part number and description.
3. Give the part number, description and quantity needed of each item. If an older part cannot be identified, return the part prepaid to your dealer or nearest Onan Parts and Service Center. Print your name and address plainly on the package. Write a letter to the same address stating the reason for returning the part.
4. State definite shipping instructions. Any claim for loss or damage to your unit in transit should be filed promptly against the transportation company making the delivery. Shipments are complete unless the packing list indicates items are back ordered.

Prices are purposely omitted from this Parts Catalog due to the confusion resulting from fluctuating costs, import duties, sales taxes, exchange rates, etc.

For current parts prices, consult your Onan Dealer, Distributor or Parts and Service Center.

"En esta lista de partes los precios se omiten de proposito, ya que bastante confusion resulto de fluctuaciones de los precios, derechos aduanales, impuestos de venta, cambios extrajeros, etc."

Consiga los precios vigentes de su distribuidor de productos "ONAN."

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# PARTS CATALOG

This catalog applies to the standard DEH Generator Sets as listed below. Parts are arranged in groups of related items. Each illustrated part is identified by a reference number corresponding to the same reference number in the parts list for that group. Parts illustrations are typical. Using the *Model* and *Spec No.* from the nameplate, select the parts from this catalog that apply to your set. Unless otherwise mentioned in the description, parts are interchangeable between models. Right and left sides are determined by facing the engine end (front) of the set.

## SET DATA TABLE

MODEL AND SPEC NO.	ELECTRICAL DATA				
	WATTS	VOLTS	HERTZ	WIRE	PHASE
25.0 DEH-53R/*	25,000	120/240	50	3	1
25.0 DEH-515R/*	25,000	£	50	12	1 or 3
30.0 DEH-3R/*	30,000	120/240	60	3	1
30.0 DEH-15R/*	30,000	£	60	12	1 or 3
30.0 DEH-9XR/*	30,000	347/600	60	4	3

\* - The Specification Letter advances (A to B, B to C, ...Z to AA, etc.) with manufacturing changes.  
A Specification Number, other than 1, designates customer option(s).

£ - These sets are broad range reconnectible sets, refer to connection diagram inside AC control box panel.

**NOTE:** Hertz is a unit of frequency equal to one cycle per second.

## REPLACEMENT ENGINE

100-0993      1      Engine, Replacement (Ford Motor Company Model 2711E)

### General Description:

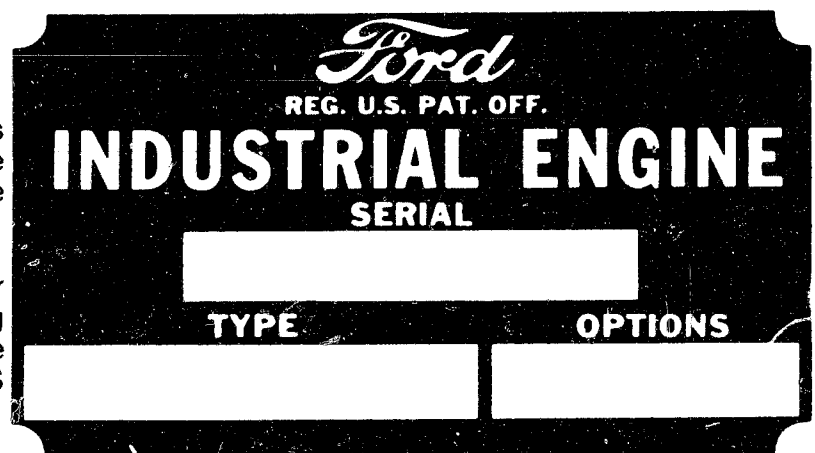
Includes—Complete Cylinder Block, Fuel Pump, Fuel Filter, Oil Filter, Starter Motor, Governor, Fan Blades (pusher type), Flywheel, Water Pump, Oil Pan, Exhaust Manifold.

Excludes—Alternator, Alternator Mounting Brackets, Alternator Belt, Temperature Sender, Oil Pressure Sender, Air Cleaner, Radiator, Fan Belt and Front Mounting Brackets.

## ENGINE PARTS

Engine parts modified or added by Onan will be in this parts list and have Onan part numbers. These supersede similar parts listed in the Ford Engine manual.

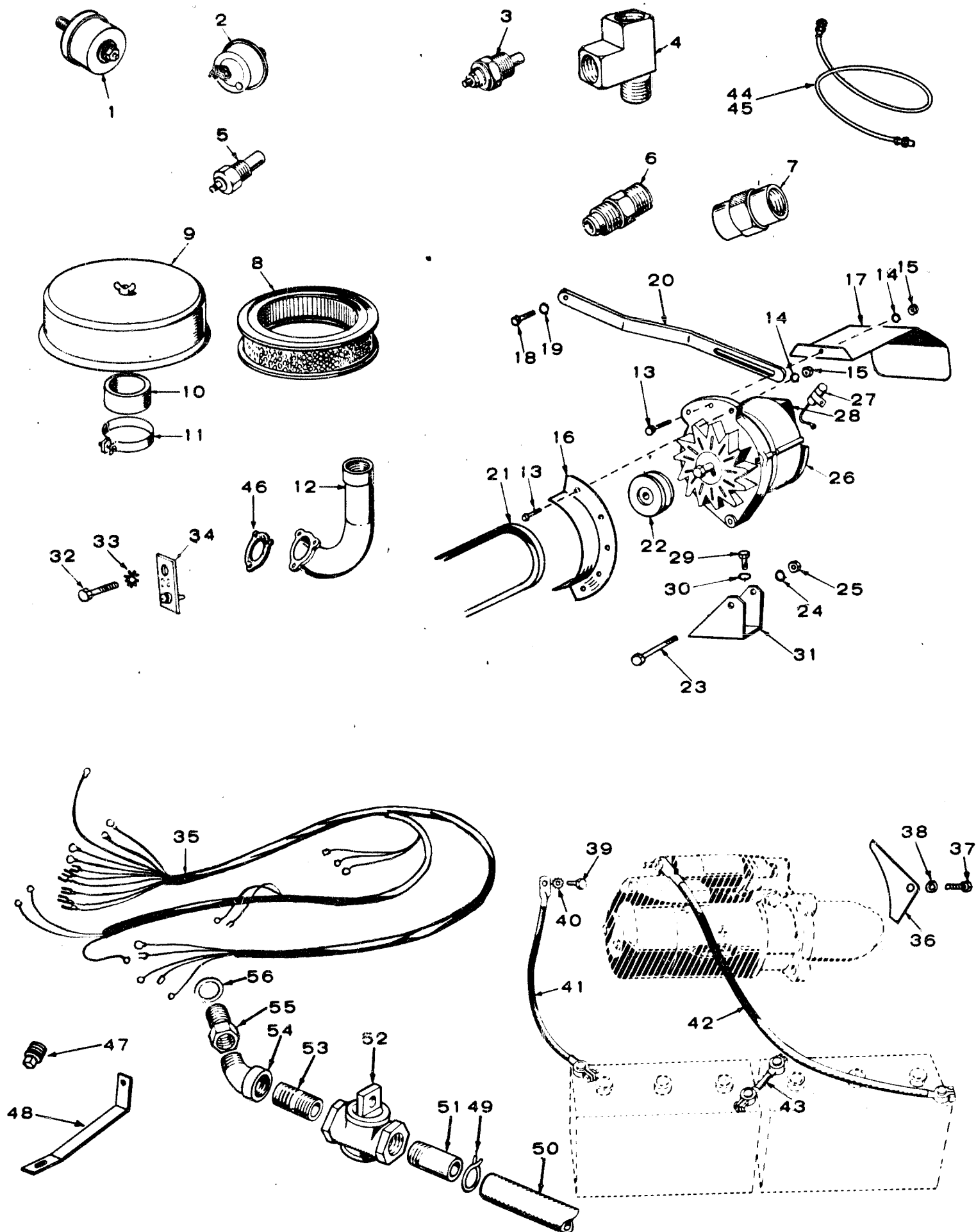
All Ford engine parts must be ordered from your nearest authorized Ford distributor. When ordering parts, refer to the engine nameplate giving the complete engine TYPE, SERIAL and OPTIONS number.



## NOTICE!

ITEMS REFERENCED AS **OPTIONAL** INDICATE PART IS FACTORY INSTALLED AND MAY NOT BE APPLICABLE TO ALL MODELS. FOR FIELD CONVERSIONS ADDITIONAL PARTS ARE USUALLY REQUIRED.

# MISCELLANEOUS ENGINE PARTS



976-0220 (JUNE 1980)

## MISCELLANEOUS ENGINE PARTS

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	SENDER, OIL PRESSURE			29	800-0048	2	Screw, Cap - Hex Head (5/16-18 x 7/8")
	193-0108	1	Spec B through G	30	850-0045	2	Washer, Lock - Spring (5/16)
	193-0244	1	Begin Spec H	31	191-0786	1	Bracket, Mounting - Alternator
2	309-0169	1	Switch, Low Oil Pressure	32	800-0047	1	Screw, Cap - Hex Head (3/8-16 x 5/8")
3	SENDER, OIL TEMPERATURE			33	856-0010	1	Washer, Lock - External/Internal Tooth (3/8")
	193-0202	1	Spec B through G	34	332-1292	1	Bracket, Terminal
	193-0249	1	Begin Spec H	35	338-0537	1	Harness, Engine Control (One Fault Light)
4	502-0361	1	Tee, Pipe - (1/8")	36	191-0802	1	Cover, Plate - Starter Hole
5	309-0179	1	Switch, High Water Temperature	37	800-0069	1	Screw, Cap - Hex Head (7/16-14 x 3/4")
6	502-0193	1	Connector, Pipe - Fuel Line (1/8")	38	850-0055	1	Washer, Lock - Spring (7/16")
7	502-0051	1	Coupling, Pipe (1/8")	39	800-0090	1	Screw, Cap - Hex Head (1/2-13 x 1")
8	140-1089	1	Element, Air Cleaner	40	856-0008	2	Washer, Lock - External/Internal Tooth (1/2)
9	140-1091	1	Cleaner, Air	41	416-0530	1	Cable, Electrical - Battery (16")
10	503-0597	1	Hose, Air Cleaner	42	416-0531	1	Cable, Electrical - Battery (24")
11	503-0354	2	Clamp, Hose - Air Cleaner	43	416-0446	1	Cable, Electrical - Battery Jumper
12	155-0863	1	Adapter, Exhaust Tube	44	501-0225	1	Line, Fuel - Begin Spec H
13	800-0030	2	Screw, Cap - Hex Head (5/16-18 x 1-1/4")	45	501-0227	1	Line, Fuel - Begin Spec H
14	850-0045	2	Washer, Lock - Spring (5/16)	46	185-0112	1	Gasket, Exhaust Tube
15	862-0015	2	Nut, Hex (5/16-18)	47	517-0085	1	Plug, Pipe - Manifold (2")
16	191-0725	1	Guard, Belt	48	306-0226	1	Brace, Solenoid Bracket
17	191-0619	1	Shield, Heat - Alternator	49	503-0131	1	Clamp, Hose
18	800-0025	1	Screw, Cap - Hex Head (5/16-18 x 5/8")	50	503-0484	1	Hose, Rubber - Drain (15")
19	850-0045	1	Washer, Lock - Spring (5/16)	51	505-0135	1	Nipple, Pipe - Half
20	191-0101	1	Bracket, Adjusting - Alternator	52	504-0030	1	Valve, Ball - Oil Drain
21	511-0084	1	Belt, Drive - Alternator	53	505-0101	1	Nipple, Pipe - Close
22	191-0781	1	Pulley, Drive - Alternator	54	505-0119	1	Elbow, Pipe - Street (45°)
23	800-0095	1	Screw, Cap - Hex Head (1/2-13 x 2-1/4")	55	102-0619	1	Reducer, Pipe - Oil Drain
24	850-0060	1	Washer, Lock - Spring (1/2)	56	102-0532	1	Gasket, "O" Ring - Oil Drain
25	862-0016	1	Nut, Hex (1/2-13)				
26	191-0665	1	*Alternator 12 Volt (Includes Regulator & Fan) - Motorola Model #RA12N453				
27	CAPACITOR						
	312-0058	1	(.10 MFD) - Thru Spec B				
	312-0201	1	(.5 MFD) - Begin Spec C				
28	191-0732	1	*Regulator, Voltage (Part of Alternator)				

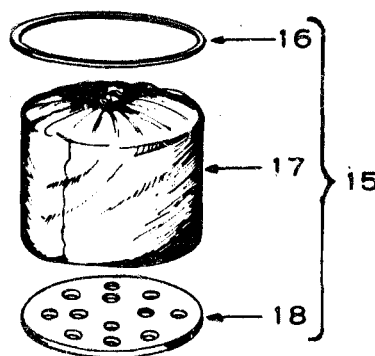
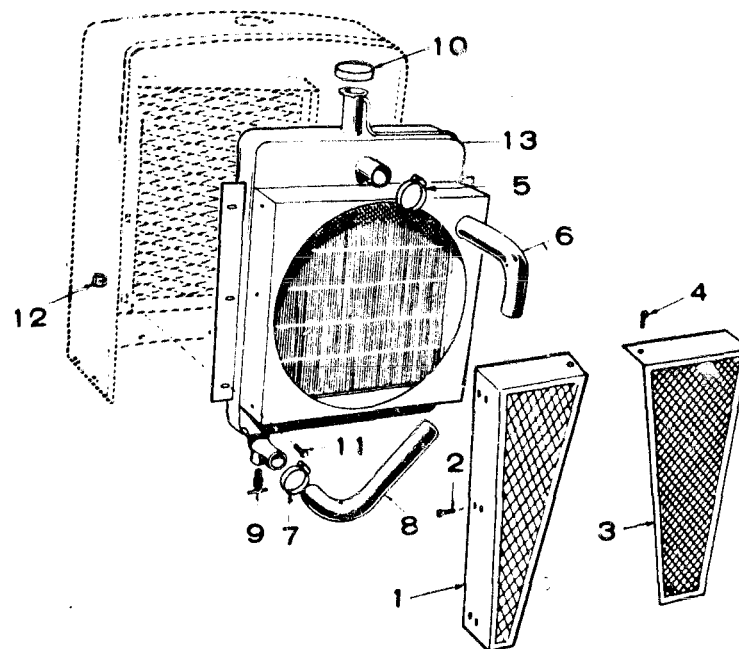
\* - For components, contact your nearest Motorola Dealer or Motorola Automotive Products, Inc., 9401 W. Grand Ave., Franklin Park, Illinois 60131.

## COOLING SYSTEM (Radiator Cooled Generator Sets)

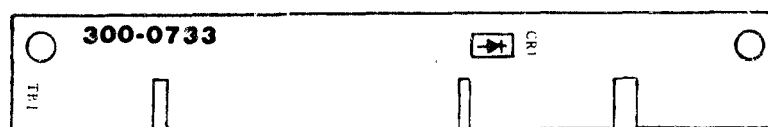
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	130-0352	1	Guard, Fan - Right Side
2	815-0181	4	Screw, Tapping, Thread Cutting - Hex Head with External Tooth Washer (#10-32 x 1/2")
3	130-0351	1	Guard, Fan - Left Side
4	815-0181	4	Screw, Tapping, Thread Cutting - Hex Head with External Tooth Washer (#10-32 x 1/2")
5	503-0365	1	Clamp, Hose
6	503-0441	1	Hose, Rubber - Upper
7	503-0311	3	Clamp, Hose
8	503-0441	1	Hose, Rubber - Lower
9	504-0028	1	Valve - Drain
10	130-0449	1	Cap - Radiator
11	821-0014	8	Screw, Self-Locking - Hex Head (5/16-18 x 1/2")
12	870-0113	8	Nut, Clinch (5/16-18)
13	130-0815	1	Radiator
15	KIT, REPLACEMENT—WATER FILTER		
	130-0769	1	Regular (Includes Parts Marked *)
	130-0772	1	Special (Includes Parts Marked +)
16	GASKET, COVER		
	130-0777	1	*Regular Element
	130-0778	1	+PAF Element
17	ELEMENT, FILTER		
	130-0773	1	*Regular Element
	130-0776	1	+PAF Element
18	PLATE, FILTER ELEMENT (Lower)		
	130-0779	1	*Regular Element
	130-0780	1	+PAF Element

\* - Contained in the #130-0769 Element Replacement Kit for the original element.

+ - Contained in the #130-0772 Element Replacement Kit for Permanent Anti-Freeze.



## CRANKER CONTROL - 12 VOLT - STANDARD

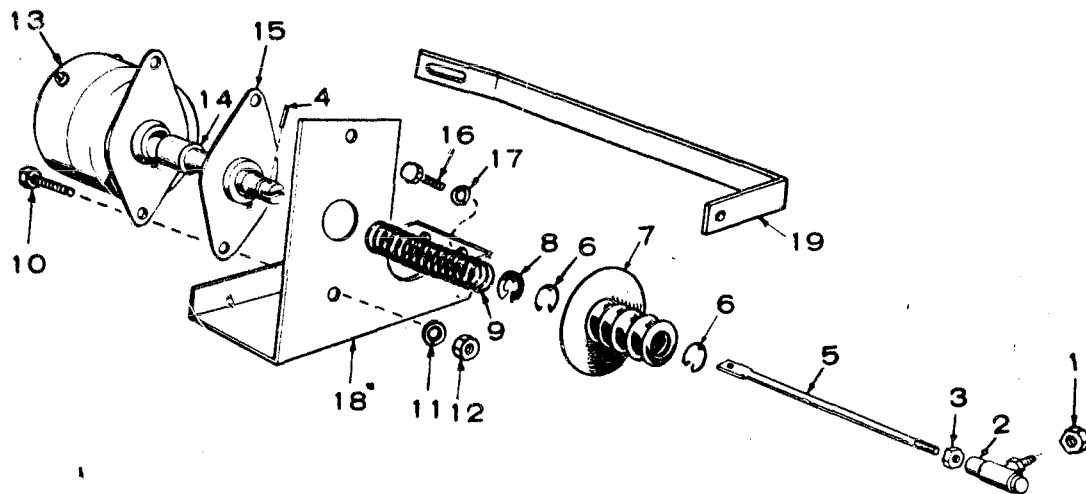


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
CR1	300-0733	1	Control, Cranker - 12 Volt
	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)

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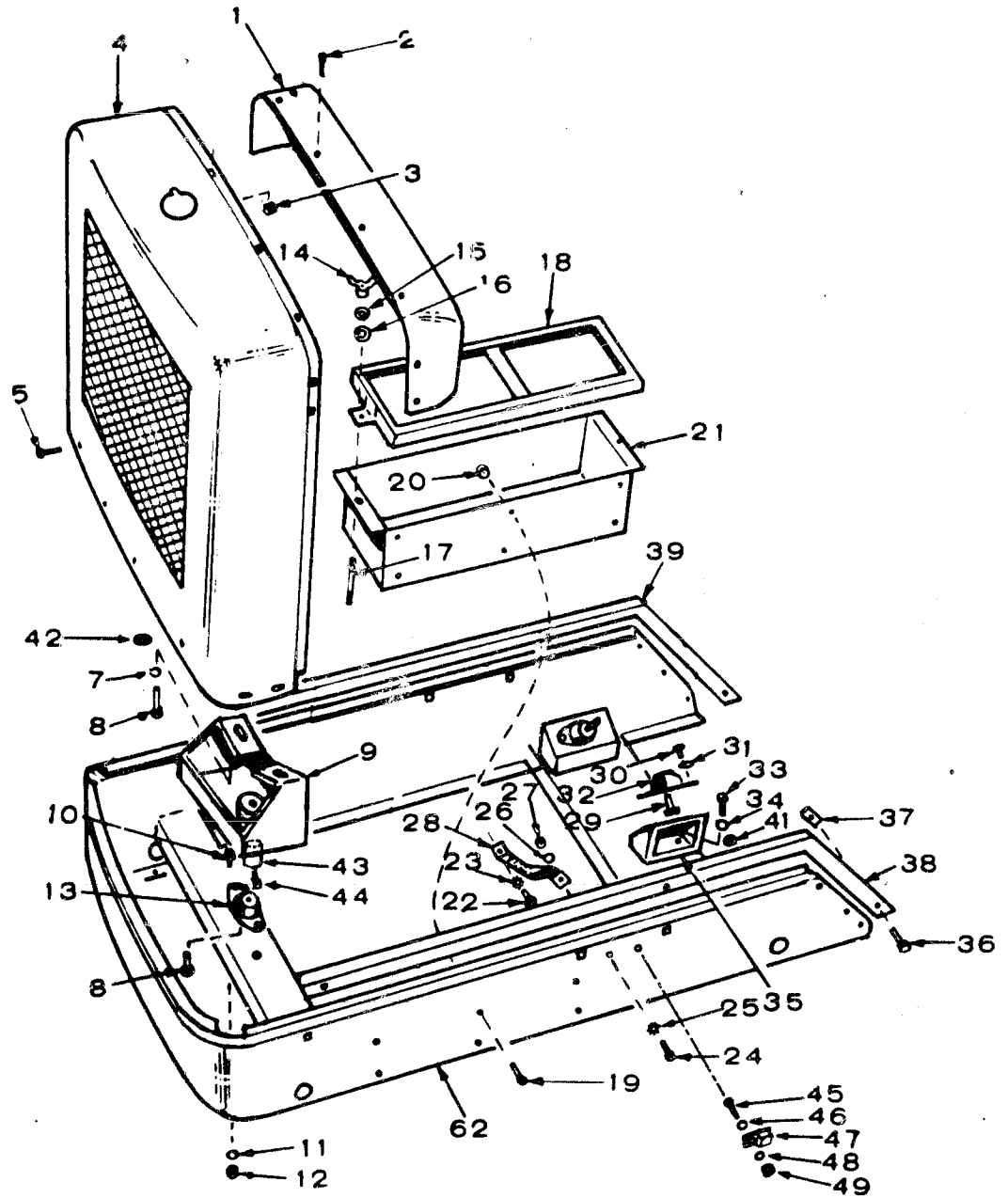


## STOPPING SOLENOID



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	115-0025	2	Nut, Hex - Hardened (1/4-28)	11	850-0040	2	Washer, Lock - Spring (1/4)
2	150-0638	1	Joint, Ball - Rod to Injection Pump	12	862-0001	2	Nut, Hex (1/4-20)
3	115-0025	1	Nut, Hex - Hardened (1/4-28)	13	307-0628	1	Solenoid (12 Volt)
4	516-0103	1	Pin, Roll (1/8 x 1/2")	14	306-0222	1	Plunger, Solenoid
5	306-0215	1	Fod, Connecting - Solenoid to Injector Pump	15	306-0162	1	Spacer, Mounting - Solenoid
6	518-0218	2	Ring, Retaining	16	800-0069	2	Screw, Cap - Hex Head (7/16-14 x 3/4")
7	306-0193	1	Cover, Plunger - Solenoid	17	850-0050	2	Washer, Lock - Spring (7/16)
8	518-0203	1	Ring, Retaining	18	306-0214	1	Bracket, Mounting - Solenoid
9	306-0161	1	Spring, Plunger - Solenoid	19	306-0226	1	Brace - Solenoid Mounting Bracket - Through Spec G
10	812-0151	2	Screw, Machine - Round Head (1/4-20 x 3/4")				

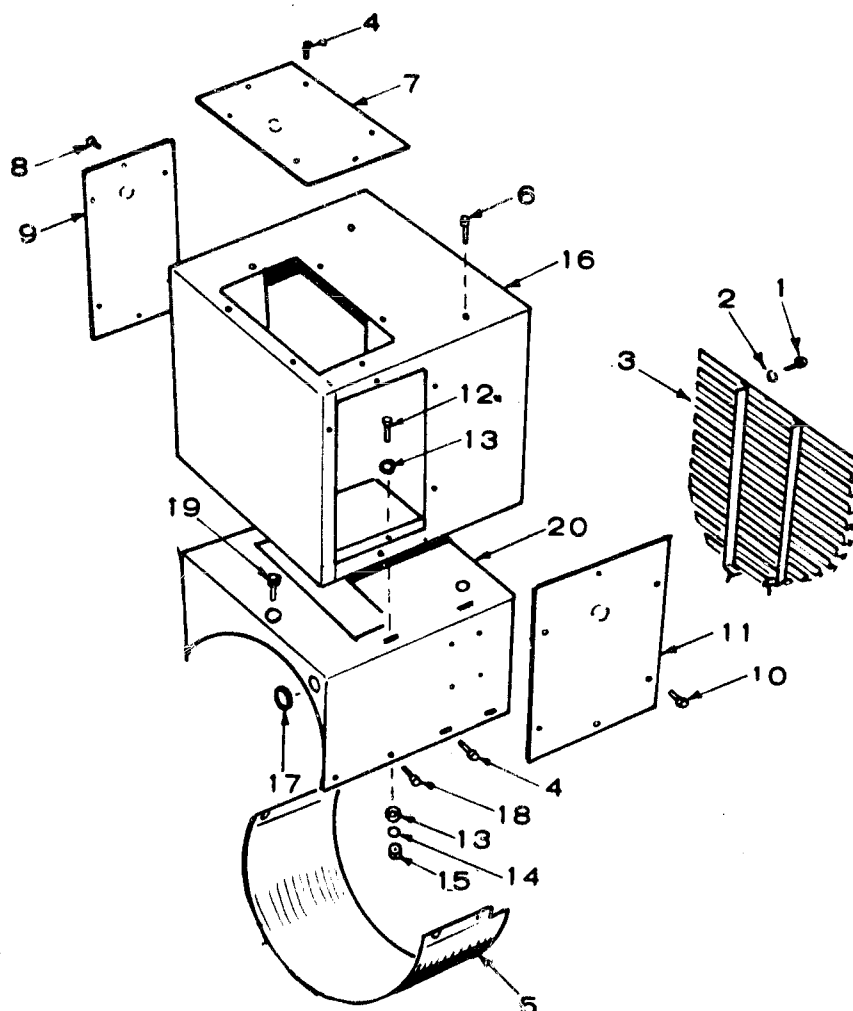
# CHASSIS



## CHASSIS

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	405-1409	1	Extension, Hood - Radiator Spec B Through G	27	862-0016	1	Nut, Hex (1/2-13)
2	821-0014	8	Screw, Self-Locking - Hex Head (5/16-18 x 1/2")	28	337-0090	1	Lead, Electrical - Ground (Flexible)
3	870-0113	8	Nut, Clinch (5/16-18) (Also used with Housed Sets)	29	800-0520	2	Screw, Cap - Special Hex Head, Unplated (3/4-10 x 1")
4	405-1811	1	Panel, Radiator (Also used with Housed Sets)	30	800-0071	4	Screw, Cap - Hex Head (7/16-14 x 1")
5	821-0014	8	Screw, Self-locking - Hex Head (5/16-18 x 1/2")	31	850-0055	4	Washer, Lock - Spring (7/16)
6	800-0050	2	Screw, Cap - Hex Head (3/8-16 x 1")	32	402-0030	2	Mount, Vibration
7	850-0050	2	Washer, Lock - Spring (3/8)	33	800-0091	4	Screw, Cap - Hex Head (1/2-13 x 1-1/4")
8	800-0520	2	Screw, Cap - Special Hex Head, Unplated (3/4-10 x 1")	34	850-0060	4	Washer, Lock - Spring (1/2)
9	403-0910	1	Support, Engine	35	232-2106	2	Bracket, Support - Generator Spec B Through G
10	800-0090	2	Screw, Cap - Hex Head (1/2-13 x 1")	36	821-0014	6	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
11	850-0060	2	Washer, Lock - Spring (1/2)	37	870-0020	6	Nut, Plate (5/16-18)
12	862-0016	2	Nut, Hex (1/2-13)	38	403-0913	1	Trim, Chassis - Right Side Spec B Through G
13	402-0030	1	Mount, Vibration	39	403-0914	1	Trim, Chassis - Left Side Spec B Through G
14	865-0007	2	Nut, Wing (5/16-18)	40	CHASSIS - ENGINE/GENERATOR (Also Used With Housed Sets)		
15	850-0045	2	Washer, Lock - Spring (5/16)		403-1111	1	Thru Spec F
16	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" THK)		403-0911	1	Spec G,H,J
17	520-0663	2	Stud (5/16-18 x 3-1/4")	41	862-0004	4	Nut, Hex (7/16-14)
18	416-0480	1	Frame, Hold-down - Battery	42	526-0030	2	Washer, Flat (3/8")
19	821-0029	6	Screw, Self-locking - Hex Head (3/8-16 x 3/4")	43	403-1426	1	Spacer, Mounting Cushion Spec G,H,J
20	870-0281	6	Nut, Self-locking (3/8-16)	44	800-0551	1	Screw, Hex Head - Cap (3/4-10 x 1-1/2")
21	416-0666	1	Tray - Battery	45	800-0028	1	Screw, Hex Head - Cap (5/16-18 x 1") - Spec G,H,J
22	800-0090	1	Screw, Cap - Hex Head (1/2-13 x 1")	46	850-0045	1	Washer, Lock (5/16") - Spec G,H,J
23	856-0013	1	Washer, Lock - External/Internal Tooth (1/2)	47	332-1473	1	Lug, Solderless - Spec G,H,J
24	800-0091	1	Screw, Cap - Hex Head (1/2-13 x 1-1/4")	48	856-0008	1	Washer, Lock (EIT 5/16") - Spec G,H,J
25	856-0013	1	Washer, Lock - External/Internal Tooth (1/2)	49	862-0015	1	Nut, Hex (5/16") - Spec G,H,J
26	850-0060	1	Washer, Lock - Spring (1/2)				

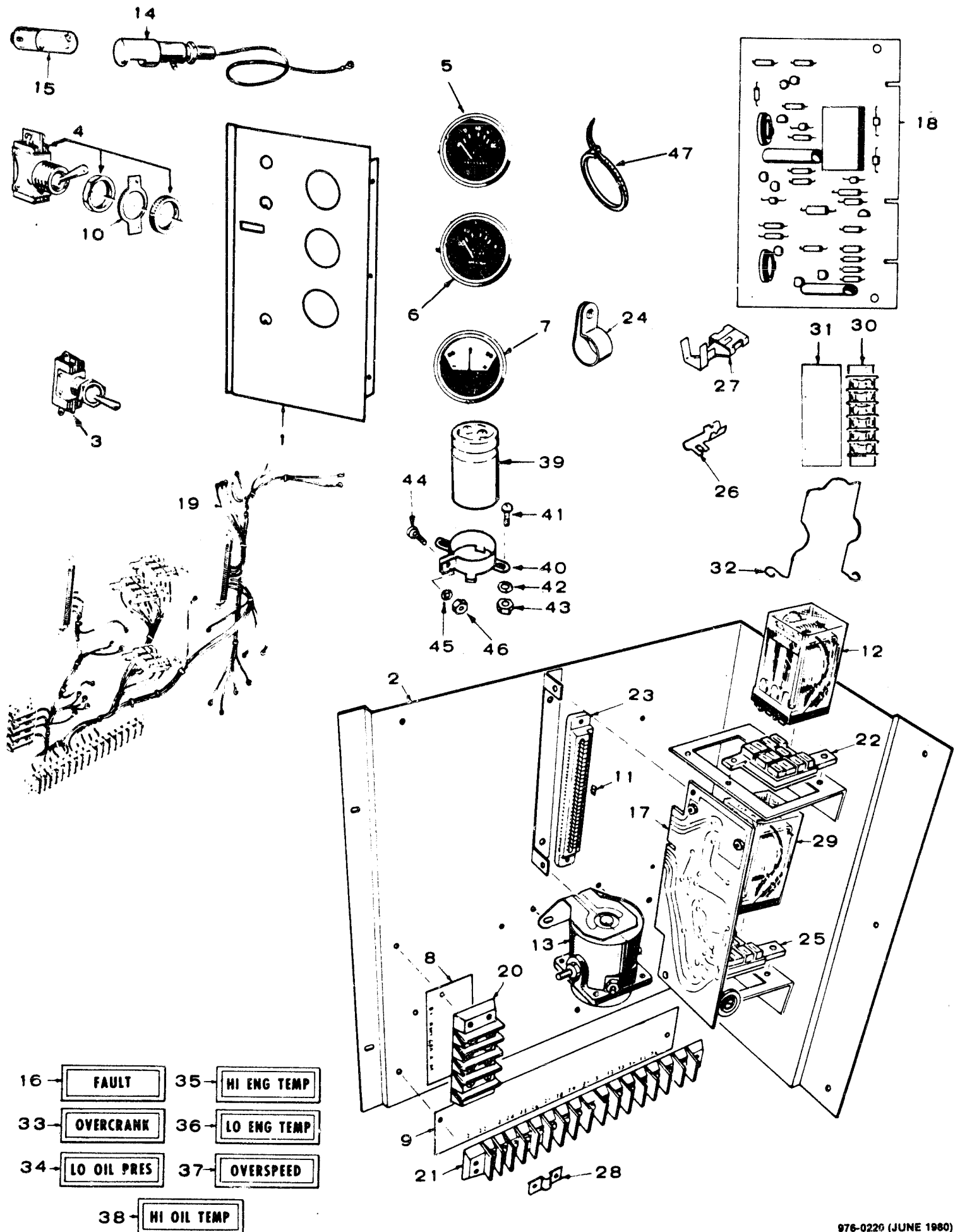
## CONTROL HOUSING



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	812-0146	4	Screw, Machine - Round Head (1/4-20 x 3/8")
2	850-0040	4	Washer, Lock - Spring (1/4)
3	234-0370	1	Grille, Inlet, Air
4	821-0010	7	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
5	234-0361	1	Wrapper, End Bell - Generator
6	821-0014	4	Screw, Self-locking - Hex Head (5/16-18 x 1/2") - Control Box Mounting
7	301-3156	As Req	Panel, Blank - Top (Also used on Housed Sets)
8	815-0350	As Req	Screw, Tapping - Hex Head, Slotted (#10-32 x 3/8")
9	301-3156	1	Panel, Blank - Left Side
10	815-0850	6	Screw, Tapping - Hex Head, Slotted (#10-32 x 3/8")
11	301-3156	1	Panel, Blank - Right Side (Also used on Housed Sets)
12	800-0003	4	Screw, Cap - Hex Head (1/4-20 x 1/2)
13	526-0018	8	Washer, Flat (17/64" ID x 5/8" OD x 1/16" Thk)
14	850-0040	4	Washer, Lock - Spring (1/4)
15	862-0001	4	Nut, Hex (1/4-20)
16	301-3155	1	Housing, Control Box
17	508-0001	1	Grommet, Rubber (3/4" ID x 1-9/32" OD)
18	821-0014	4	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
19	821-0010	1	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
20	301-3154	1	Saddle - Control Box Housing

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# CONTROL (Engine Section)



## CONTROL (ENGINE SECTION)

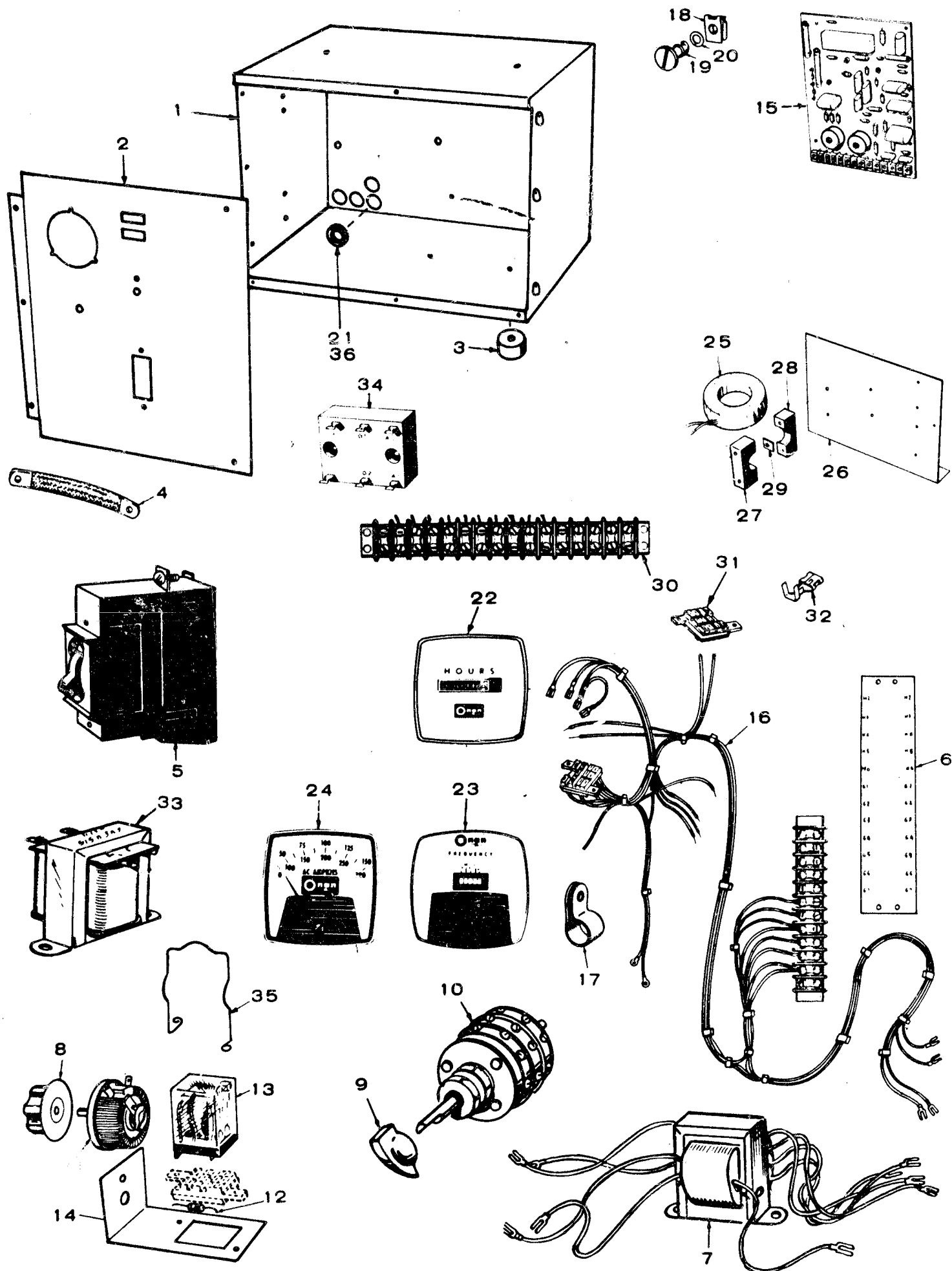
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	PANEL ONLY, ENGINE CONTROL		
	301-3165	1	Sets With One Fault Light
2	301-3253	1	Bracket, Angle - Control Mounting
3	308-0138	1	Switch, Toggle (SPDT)
4	308-0002	1	Switch, Toggle (SPST) - Thru Spec G
5	GAUGE, OIL PRESSURE		
	193-0107	1	Spec B Through G
	193-0243	1	Begin Spec H
6	GAUGE, WATER TEMPERATURE		
	193-0106	1	Spec B Through G
	193-0245	1	Begin Spec H
7	302-0061	1	Ammeter (30-0-30)
8	332-1239	1	Strip, Marker
9	332-1241	1	Strip, Marker
10	308-0003	1	Plate, Switch (On-Off) - Through Spec G
11	332-1276	2	Plug, Key
12	307-1058	2	Relay, Ignition, Start-Disconnect
13	307-1031	1	Relay, Start Solenoid
14	322-0149	1	Light, Panel - Through Spec G
15	322-0004	1	Lamp, Pilot (12 Volt) - Through Spec G
16	322-0128	1	Light, Indicator (Fault)
17	300-0733	1	*Control, Cycle Cranker
18	300-0679	1	*Control, Engine Monitor - One Fault Light
19	HARNESS ASSEMBLY, WIRING - CONTROL		
	(Includes Parts Marked †)		
	338-0528	1	Sets with One Fault Light - Standard - Through Spec G
	338-1065	1	Sets with One Fault Light - Standard - Begin Spec H
	338-0534	1	Sets with Five Fault Lights - Optional
20	332-0537	1	†Board, Terminal (4 Place)
21	332-0795	1	†Board, Terminal (16 Place)
22	323-0765	2	†Socket, Relay
23	332-1271	2	†Housing, Connector (PC Boards)
24	332-0051	1	Clamp, Loop

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
25	323-0764	1	†Socket, Relay
26	332-1269	As Req	†Contact, Electrical - PC Board Connector
27	332-1280	As Req	†Terminal, Lug
28	332-1043	1	†Jumper (Not in Harness 338-0534)
29	307-1061	1	Relay, Armature
30	332-0699	1	†Board, Terminal (6 Place) - (Not in Harness 338-0528; 338-1065)
31	332-1240	1	Strip, Marker
32	307-1157	3	Clip, Retaining - Relay
33	322-0107	1	Light, Indicator (Overcrank)
34	322-0108	1	Light, Indicator (Low Oil Pressure)
35	322-0109	1	Light, Indicator (Hi Engine Temp)
36	322-0110	1	Light, Indicator (Low Engine Temp)
37	322-0111	1	Light, Indicator (Overspeed)
38	322-0112	1	Light, Indicator (Hi Oil Temp)
39	356-0072	1	Capacitor (Begin Serial #A780293758 During Spec H)
40	356-0070	1	Bracket, Mounting (Begin Serial #A780293758 During Spec H)
41	312-0076	2	Screw, Machine - Roundhead (8-32 x 5/16") - Begin Serial #A780293758 During Spec H
42	850-0025	2	Washer, Lock (#8) - Begin Serial #A780293758 During Spec H
43	850-0008	2	Nut, Hex (#8-32) - Begin Serial #A780293758 During Spec H
44	812-0065	1	Screw, Machine - Roundhead (#6-32 x 5/8") - Begin Serial #A780293758 During Spec H
45	850-0020	1	Washer, Lock (#6) - Begin Serial #A780293758 During Spec H
46	860-0006	1	Nut, Hex (#6-32) - Begin Serial #A780293758 During Spec H
47	332-0941	2	Tie, Wire Holddown

\* - See Separate Group for Components.

† - Included in Wiring Harness.

# CONTROL (AC Output Portion)



## CONTROL (AC OUTPUT PORTION)

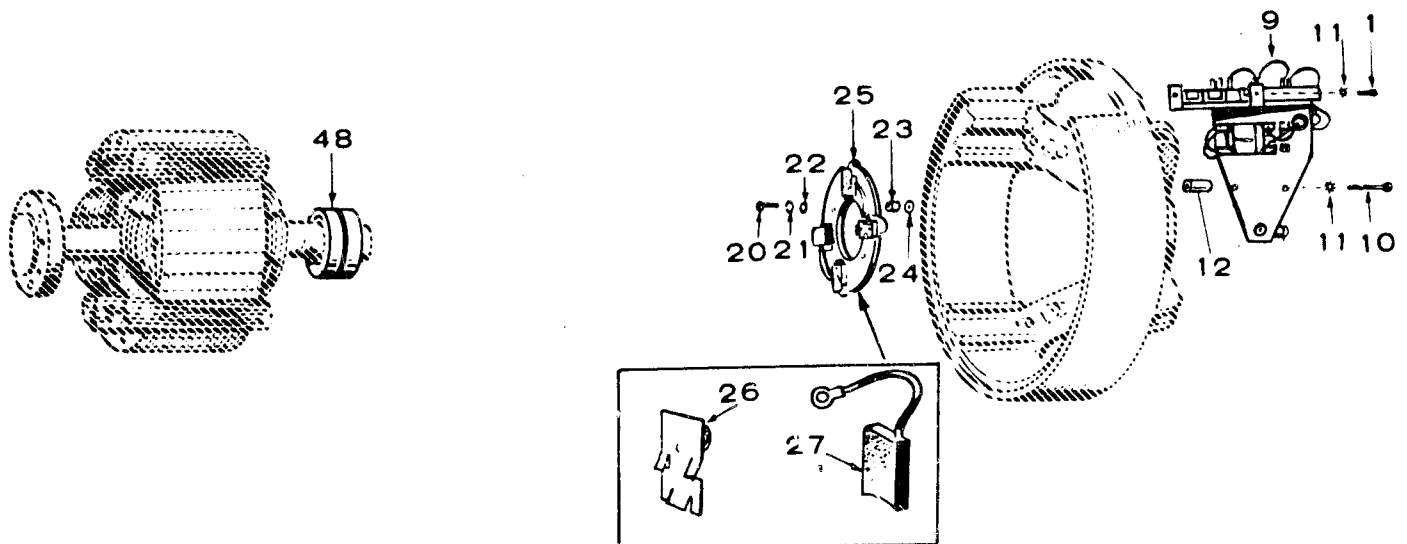
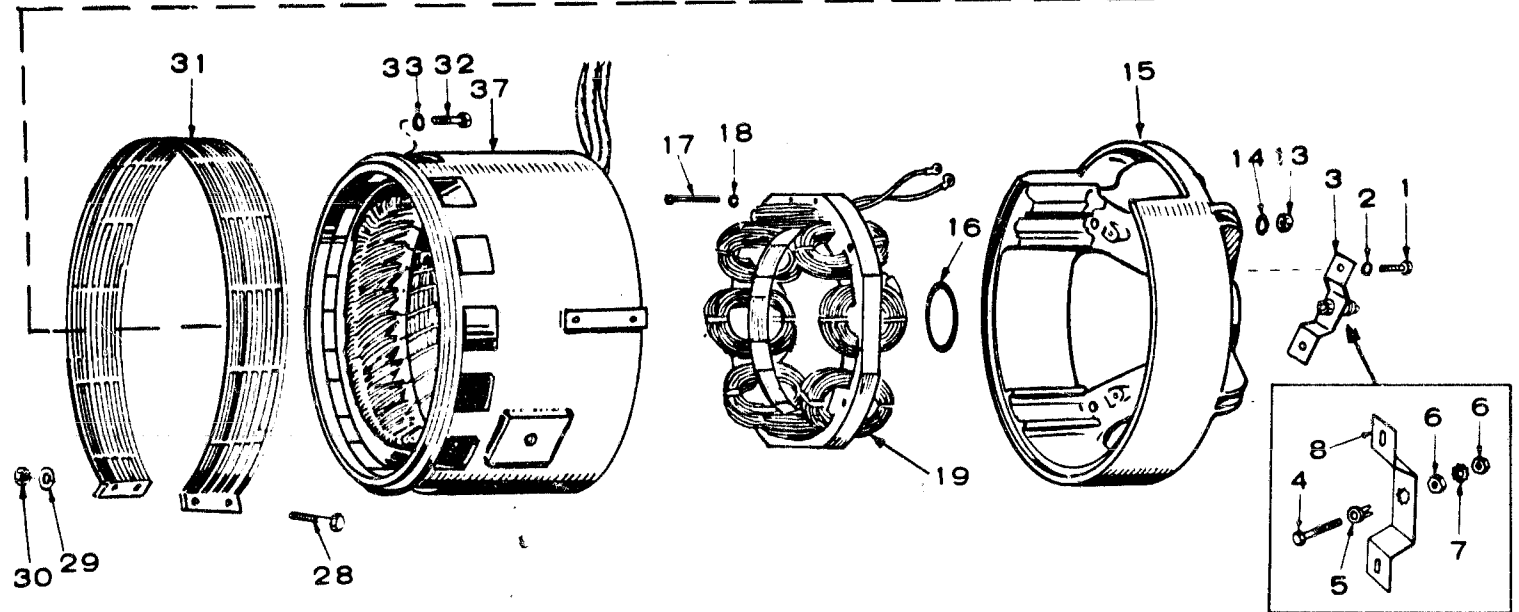
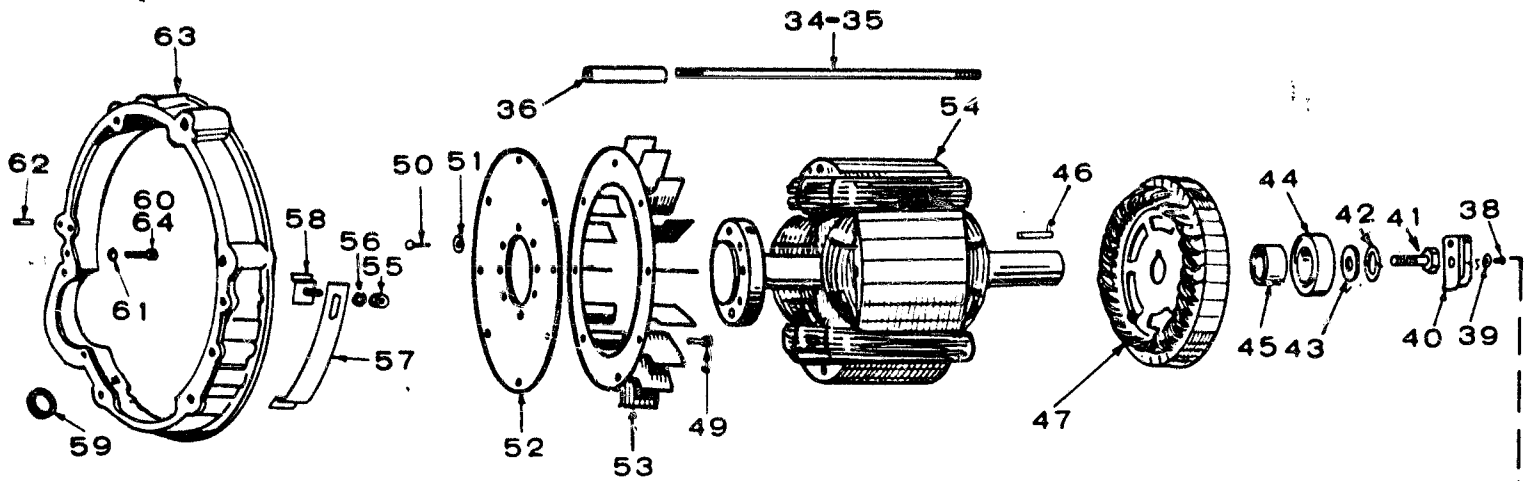
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	301-3158	1	Box, Control		338-0759	1	30.0DEH-9XR Sets - Spec G
2	PANEL ONLY, CONTROL				338-0766	1	30.0DEH-9XR Sets - Spec G,H - Sets With Meter Panel
	301-3167	1	Sets Without Meter Panel		338-0523	1	25.0DEH-53R & 30.0DEH-3R Sets
			25.0DEH-53R & 30.0DEH-3R Sets - Through Spec H				
	301-3822	1	25.0DEH-53R & 30.0DEH-3R Sets - Begin Spec J	17	332-0050	1	Clamp, Loop
	301-3168	1	25.0DEH-515R & 30DEH-15R Sets - Through Spec F	18	406-0332	2	Receptacle, Turnbutton Fastener
	301-3274	1	25.0DEH-515R & 30DEH-15R Sets - Begin Spec G	19	406-0333	2	Stud, Turnbutton Fastener
	301-3341	1	30.0DEH-9XR Sets - Thru Spec F	20	406-0334	2	Washer, Lock - Turnbutton Stud
	301-3321	1	30.0DEH-9XR Sets - Begin Spec G	21	508-0001	4	Grommet, Rubber (1-1/16" OD) Through Spec F
3	402-0078	4	Mount, Vibration	22	TIME TOTALIZING METER		
4	337-0049	1	Lead, Electrical - Ground		302-0466	1	60 Hertz
5	320-0431	1	Breaker, Circuit		302-0469	1	50 Hertz
6	MARKER STRIP			23	ELECTRICAL FREQUENCY METER		
	332-1248	1	Strip, Marker (12 Place)		302-0221	1	60 Hertz
7	TRANSFORMER, VOLTAGE				302-0256	1	50 Hertz
	315-0342	1	Spec B Through G	24	302-0719	1	Ammeter (0-75, 0-150)
	315-0431	1	Begin Spec H	25	CURRENT TRANSFORMER		
8	303-0032	1	Knob		302-0079	3	25.0DEH-515R & 30.0DEH-15R Sets
9	303-0076	1	Knob, Pointer		302-0209	2	25.0DEH-53R & 30.0DEH-3R Sets
10	ROTARY SWITCH, VOLTMETER				302-0117	3	30.0DEH-9XR Sets
	308-0012	1	Switch, Rotary - 2 Pole, 4 Position	26	302-0729	1	Bracket, Angle - Current Transformer Mounting
11	303-0170	1	Rheostat	27	302-0235	3	Clamp, Retaining, Transformer - Upper
12	350-0556	1	†Resistor, Composition (47,000-Ohm, 1/2 Watt, 5%) (Not in Harness 338-0522; 338-0523; 338-0570; 338-0571; 338-0735; 338-0759; 338-0765; 338-0766)	28	302-0236	3	Clamp, Retaining, Transformer - Lower
				29	302-0253	As Req	Shim - Transformer Mounting
				30	TERMINAL BOARD		
13	307-1061	1	Relay, Voltage Selector		332-0607	1	†Board, Terminal (12 Place) (Not in Harness 338-0523; 338-0525; 338-0571; 338-0730; 338-0759)
14	301-3244	1	Bracket, Angle - Relay Socket		332-0795	1	†Board, Terminal (16 Place) - Optional (Not in Harness 338-0522; 338-0524; 338-0570; 338-0765; 338-0766)
15	REGULATOR BOARD, VOLTAGE (See Separate Group for Breakdown)			31	323-0764	1	†Socket, Relay (Not in Harness 338-0522; 338-0523; 338-0570; 338-0571; 338-0735; 338-0759; 338-0765; 338-0766)
	332-1268	1	Spec B through G (use w/315-0342)	32	332-1280	As Req	†Terminal, Lug (Not in Harness 338-0522; 338-0523; 338-0570; 338-0571; 338-0735; 338-0759; 338-0765; 338-0766)
	332-1956	1	Begin Spec H (use w/315-0431)	33	315-0384	1	Reactor - Begin Spec G
16	HARNESS, WIRING - AC CONTROL (Includes Parts Marked +)			34	305-0524	1	Rectifier Assembly - Begin Spec G
			Sets Without Meter Panel	35	307-1157	1	Clip, Retaining - Relay
	338-0522	1	25.0DEH-53R & 30.0DEH-3R Sets - Through Spec F	36	508-0203	1	Bushing, Nylon (1-23/64" OD) - Spec G,H,J
	338-0735	1	25.0DEH-53R & 30.0DEH-3R Sets - Spec G				
	338-0765	1	25.0DEH-53R & 30.0DEH-3R Sets - Spec H,J				
	338-0524	1	25.0DEH-515R & 30.0DEH-15R Sets - Through Spec F				
	338-0730	1	25.0DEH-515R & 30.0DEH-15R Sets - Spec G				
	338-0764	1	25.0DEH-515R & 30.0DEH-15R Sets - Spec G,H,J				
	338-0570	1	30.0DEH-9XR Sets - Through Spec F				

† - Included in Wiring Harness

† - Included in Wiring Harness



# GENERATOR



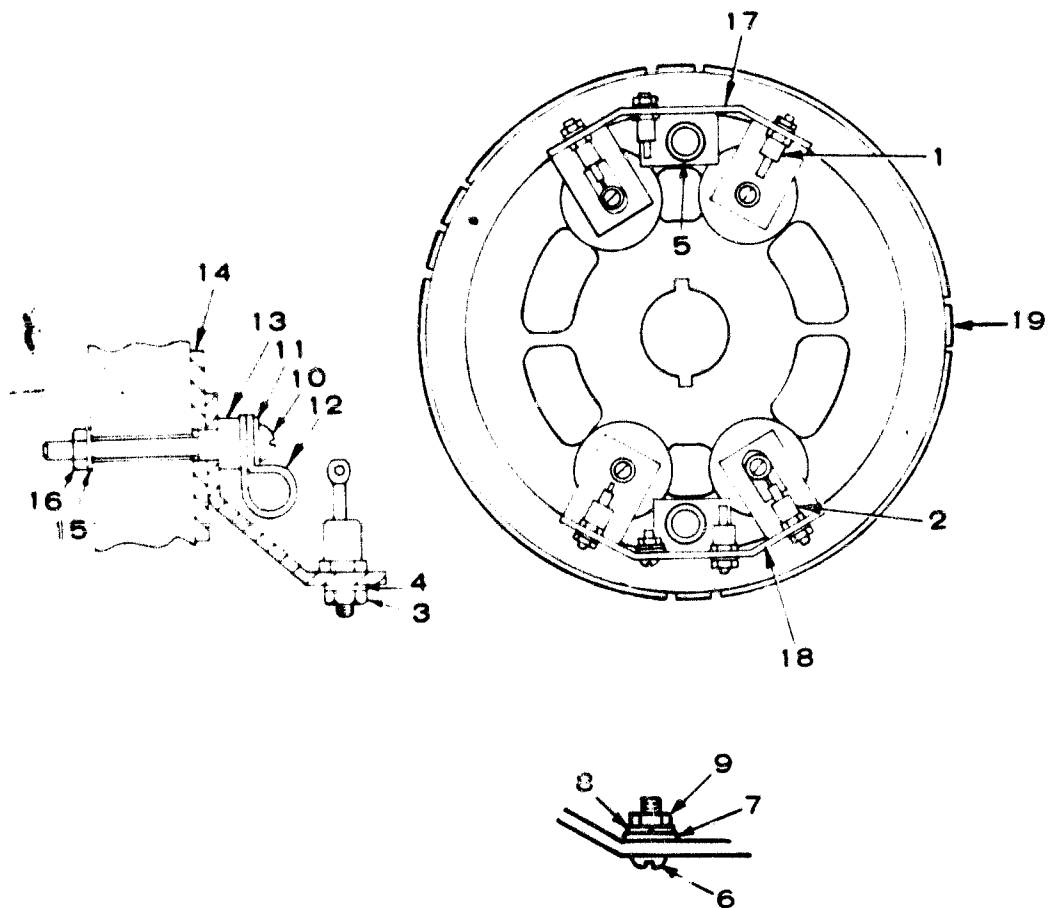
# GENERATOR

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1/2")
2	850-0040	2	Washer, Lock - Spring (1/4")
3	150-1456	1	Contact Assembly - Overspeed Switch (Includes Parts Marked †) - Begin Spec G
4	150-0723	1	†Point, Overspeed Switch
5	870-0250	1	†Nut, Insulated - Overspeed Switch
6	862-0001	2	†Nut, Hex (1/4-20)
7	853-0013	1	†Washer, Lock - External Tooth (1/4")
8	150-1356	1	†Bracket, Overspeed Switch
9	VOLTAGE REGULATOR ASSEMBLY Spec B Though G (See Separate Group for Complete Breakdown)		
	305-0491	1	Brushless Generator
	305-0489	1	Brush Type Generator
10	800-0009	2	Screw, Cap - Hex Head (1/4-20 x 1-1/2") Spec B Through F
11	853-0013	4	Washer, Lock - External Tooth (1/4") Spec B Through F
12	305-0481	2	Spacer, Sleeve
13	862-0011	4	Nut, Hex - Special, Grade 8 (3/8-16)
14	850-0050	4	Washer, Lock - Spring (3/8")
15	211-0185	1	End Bell - Generator
16	509-0125	1	Seal, Oil - "O" Ring
17	800-0009	4	Screw, Cap - Hex Head (1/4-20 x 1-1/2")
18	850-0040	8	Washer, Lock - Spring (1/4")
19	220-2353	1	Stator, Exciter - Brushless Generator
20	114-0023	4	Screw, Cap - Hex Head, Special - Heat Treated (1/4-20 x 1-1/4")
21	850-0040	4	Washer, Lock - Spring (1/4")
22	526-0018	4	Washer, Flat (17/64" ID x 5/8" OD x 1/16" Thk)
23	212-1225	4	Spacer, Sleeve
24	526-0016	4	Washer, Flat (17/64" ID x 9/16" OD x 1/32" Thk)
25	212-0342	1	Rig Assembly, Brush (Includes Brush and Springs Marked +) - Brush Type Generators
26	212-1105	4	+Spring, Brush
27	214-0046	4	+Brush, Generator
28	800-0008	2	Screw, Cap - Hex Head (1/4-20 x 1-1/4")
29	850-0040	2	Washer, Lock - Spring (1/4")
30	862-0001	2	Nut, Hex (1/4-20)
31	234-0368	1	Screen, Air Outlet - Generator
32	800-0051	8	Screw, Cap - Hex Head (3/8-16 x 1-1/4")
33	850-0050	8	Washer, Lock - Spring (3/8")
34	520-0718	4	Stud (3/8-16 x 3/8-16 x 14-11/16") - Used on Three Phase Sets

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
35	520-0721	4	Stud (3/8-16 x 3/8-16 x 16-11/32") Used on Three Phase Sets
36	503-0611	4	Hose, Rubber
37	STATOR, WOUND		
	220-1552	1	25.0DEH-53R Sets
	220-1994	1	25.0DEH-515R Sets
	220-1552	1	30.0DEH-3R Sets
	220-1451	1	30.0DEH-15R Sets
	220-1599	1	30.0DEH-9XR Sets
38	812-0189	1	Screw, Machine - Round Head (3/8-16 x 3/4")
39	856-0010	1	Washer, Lock - External/Internal Tooth (3/8")
40	150-0717	1	Switch, Overspeed
41	ROTOR ASSEMBLY, GENERATOR (Includes Parts Marked *)		
	800-0513	1	*Screw, Cap - Hex Head, Special Heat Treated, Unplated (3/4-10 x 1-1/2")
42	850-0079	1	*Washer, Lock - Spring (3/4")
43	526-0238	1	*Washer, Flat - Steel Alloy (13/16" ID x 2" OD x 3/16" Thk)
44	510-0101	1	*Bearing, Ball
45	232-2102	1	*Spacer, Sleeve
46	515-0145	1	*Key, Machine (1/4" x 1/4" x 7/8")
47	201-1739	1	*Rotor Assembly, Exciter - Brushless Generators Only (See Separate Group for Components)
48	204-0083	1	*Ring, Collector - Brush Type Generators Only
49	805-0018	8	Bolt, Hex Head - Grade 8 (3/8-16 x 1")
50	805-0033	8	*Bolt, Hex Head - Grade 8 (5/8-11 x 1")
	526-0259	8	*Washer, Flat - Special Hardened Steel 5/8"
52	232-2078	1	*Disk, Drive - Generator
53	205-0089	1	*Fan, Centrifugal - Generator
54	ROTOR, WOUND		
	201-1714	1	25.0 DEH - 53R Sets
	201-2666	1	25.0 DEH - 515R Sets
	201-2669	1	30.0 DEH - 3R Sets
	201-2666	1	30.0 DEH - 15R Sets
	201-2666	1	30.0 DEH - 9XR Sets
55	862-0001	2	Nut, Hex (1/4-20)
56	850-0040	2	Washer, Lock - Spring (1/4")
57	232-2210	2	Cover, Adapter Slot
58	232-2211	2	Catch, Adapter Slot Cover
59	508-0001	1	Grommet, Rubber - Generator Adapter
60	800-0072	8	Screw, Cap - Hex Head (7/16-14 x 1-1/4")
61	850-0055	9	Washer, Lock - Spring (7/16")
62	516-0152	2	Pin, Straight, Headless
63	231-0149	1	Adapter - Engine to Generator
64	800-0076	1	Screw, Hex Head - Cap (7/16-14 x 2") - Spec G,H,J

- † - Included in Overspeed Contact Assembly No. 150-1456.  
+ - Included in Brush Rig Assembly No. 212-0342.  
\* - Included in Generator Rotor Assembly.

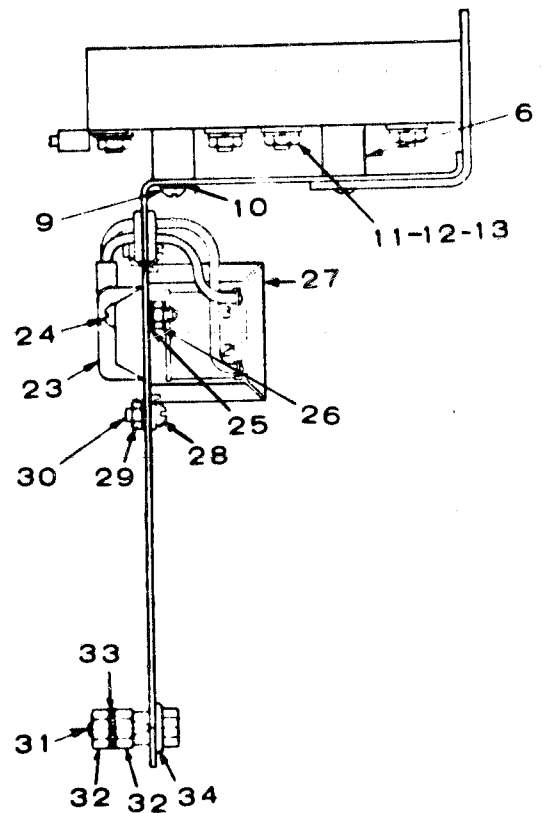
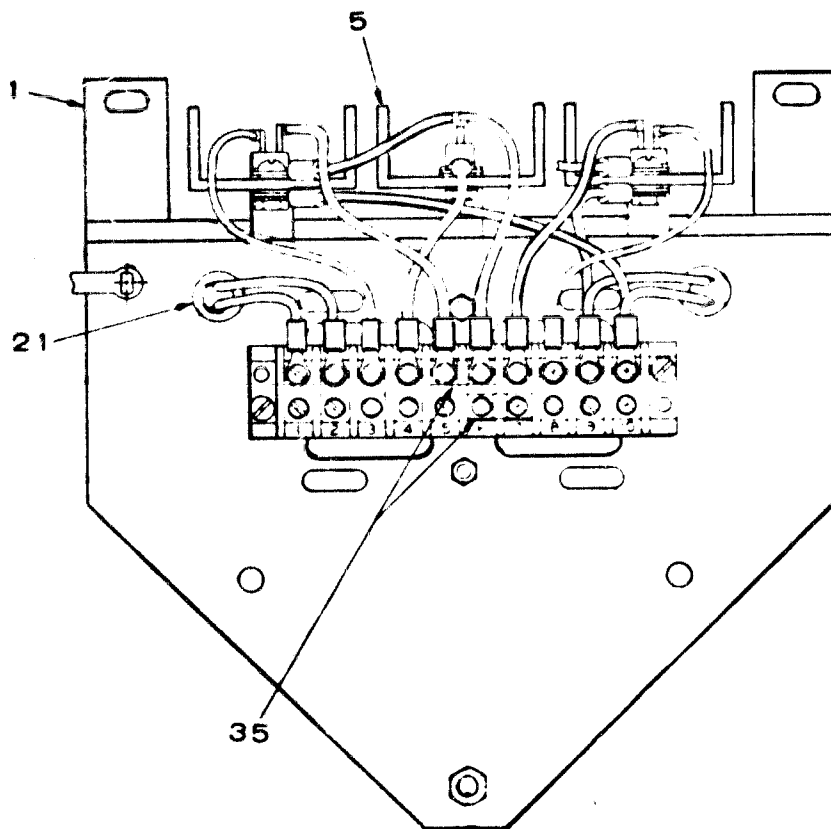
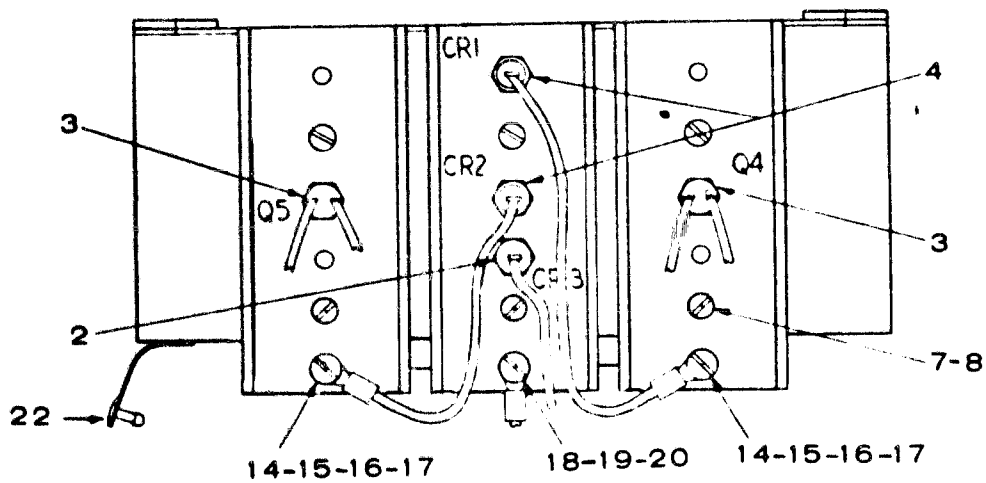
# EXCITER ROTOR



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	358-0016	3	Rectifier, Diode - Positive
2	358-0015	3	Rectifier, Diode - Negative
3	870-0053	6	Nut, Hex (#10-32)
4	850-0030	6	Washer, Lock - Spring (#10)
5	508-0093	2	Grommet, Rubber
6	813-0100	2	Screw, Machine - Round Head (#10-32 x 1/2")
7	526-0008	2	Washer, Flat (13/64" ID x 7/16" OD x 1/32" THK)
8	850-0030	2	Washer, Lock - Spring (#10)
9	870-0053	2	Nut, Hex (#10-32)
10	813-0110	4	Screw, Machine - Round Head (#10-32 x 2")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
11	526-0009	4	Washer, Flat (7/32" ID x 1/2" OD x 1/16" THK)
12	332-0050	2	Clamp, Loop
13	508-0124	4	Spacer, Stepped
14	508-0156	4	Washer, Flat - Fiber (19/64" ID x 1-7/8" OD x 1/8" THK)
15	850-0030	5	Washer, Lock - Spring (#10)
16	870-0053	4	Nut, Hex (#10-32)
17	363-0054	1	Heat Sink, Rectifier - Positive
18	363-0055	1	Heat Sink, Rectifier - Negative
19	201-1737	1	Rotor, Exciter

# VOLTAGE REGULATOR - SPEC B THROUGH G



# VOLTAGE REGULATOR - SPEC B THROUGH G

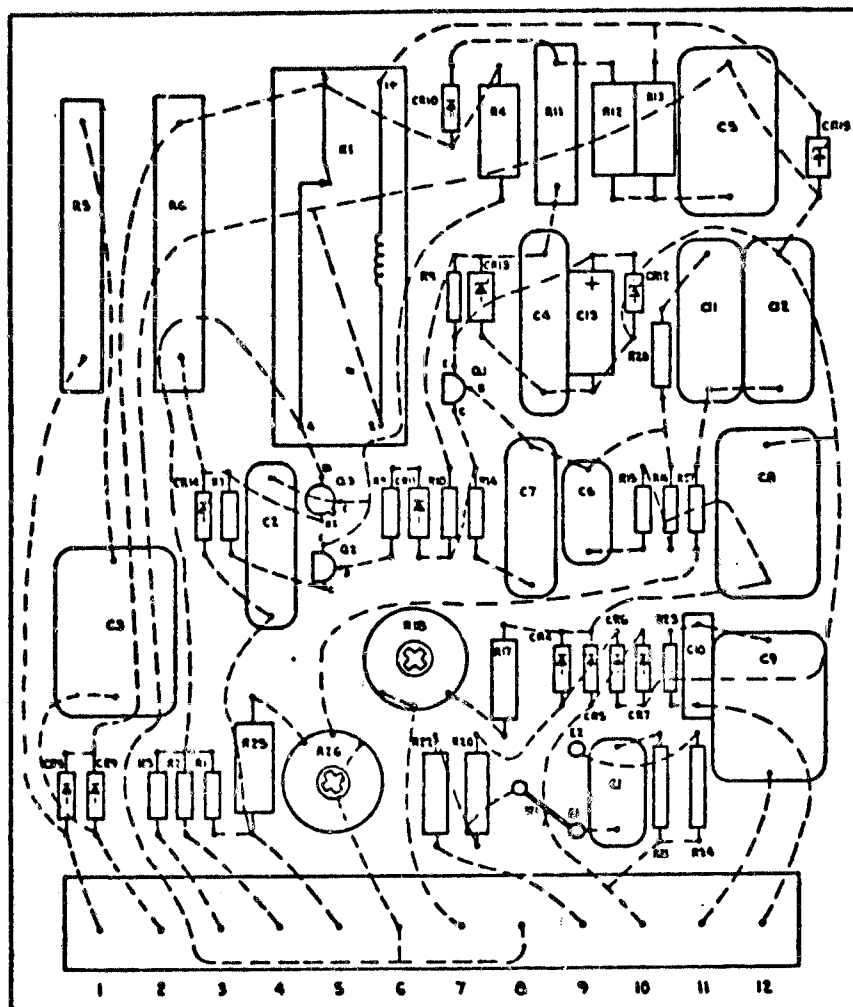
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	CHASSIS ASSEMBLY, VOLTAGE REGULATOR (Complete)		
	305-0491		Brushless Generator (Includes Parts Marked *)
	305-0489	1	Brush Type Generator (Includes Parts Marked †)
1	305-0482	1	*†Chassis, Voltage Regulator
2	358-0029	1	*†Rectifier, Silicon (CR3)
3	RECTIFIER, SILICON CONTROLLED		
	364-0014	2	*Brushless Generator (Q4 & Q5)
	364-0012	2	*†Brush Type Generator (Q4 & Q5)
4	RECTIFIER, SILICON		
	358-0035	2	*Brushless Generator (CR1 & CR2)
	358-0031	2	*†Brush Type Generator (CR1 & CR2)
5	363-0048	3	*†Heat Sink, Rectifier
6	332-1265	6	*†Insulator, Stand off
7	812-0077	6	*†Screw, Roundhead - Heat Sink Mtg. (8-32 x 3/8")
8	853-0005	6	*†Washer, Lock - ET - Heat Sink Mtg. (#8)
9	812-0077	6	*†Screw, Machine Roundhead - Stand off Insulator Mtg. (#8-32 x 3/8")
10	853-0005	6	*†Washer, Lock - ET Stand off Insulator Mtg. (#8)
11	871-0010	3	*†Nut, Hex - Rectifier Mounting (CR1, CR2 & CR3) (#10-32)
12	526-0009	3	*†Washer, Flat (7/32" I.D. x 1/2" O.D. x 1/16" Thick) - Rectifier Mtg. (CR1, CR2 & CR3)
13	850-0030	3	*†Washer, Lock - Spring - Rectifier Mtg. (CR1, CR2 & CR3) (#10)
14	812-0079	2	*†Screw, Machine - Roundhead - Rectifier Lead to Heat Sink (#8-32 x 1/2")
15	526-0048	2	*†Washer, Flat (Brass) (.172" I.D. x 3/8" O.D. x 1/32" Thick)
16	853-0005	2	*†Washer, Lock - ET - Rectifier Lead to Heat Sink (#8)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
17	871-0007	2	*†Nut, Hex - Rectifier Lead to Heat Sink (#8-32)
18	812-0079	1	*†Screw, Machine Roundhead - Terminal Block Lead to Heatsink (#8-32 x 1/2")
19	853-0005	1	*†Washer, Lock - ET - Terminal Block to Heat Sink (#8)
20	871-0007	1	*†Nut, Hex - Terminal Block Lead to Heat Sink (#8-32)
21	508-0002	2	*†Grommet, Rubber
22	332-1415	1	*†Clamp, Cable
23	332-1266	1	*†Block, Terminal
24	812-0081	2	*†Screw Machine - Roundhead - Terminal Block Mounting (#8-32 x 5/8")
25	853-0005	2	*†Washer, Lock - ET - Terminal Block Mounting (#8)
26	860-0008	2	*†Nut, Hex - Terminal Block Mounting (#8-32)
27	REACTOR ASSEMBLY, COMMUTATOR		
	315-0343	1	*Brushless Generator
	315-0341	1	*†Brush Type Generator
28	812-0077	2	*†Screw, Machine - Roundhead - Reactor Mtg. (#8-32 x 3/8")
29	853-0005	2	*†Washer, Lock - ET - Reactor Mounting (#8)
30	860-0008	2	*†Nut, Hex - Reactor Mtg. (#8-32)
31	150-0723	1	*†Point, Contact - Overspeed Switch
32	862-0001	2	*†Nut, Hex - Contact Point (1/4-20)
33	853-0013	1	*†Washer, Lock - ET Contact Point (1/4)
34	870-0250	2	*†Nut, Insulator - Contact Point (1/4)
35	332-1043	2	*†Jumper - Terminal Block

\* - Parts included in 305-0491 Voltage Regulator.

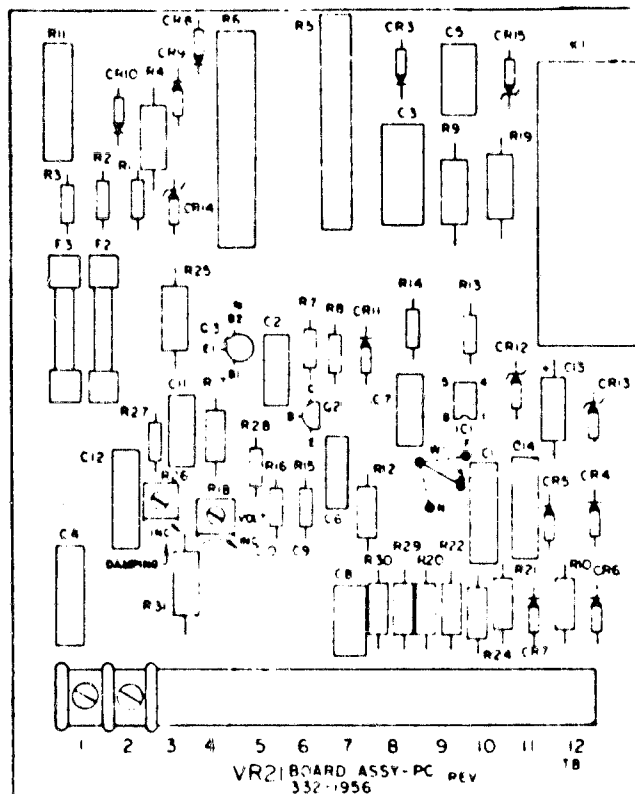
† - Parts included in 305-0489 Voltage Regulator.

# VOLTAGE REGULATOR BOARD - BRUSHLESS TYPE GENERATOR (SPEC B THROUGH G)



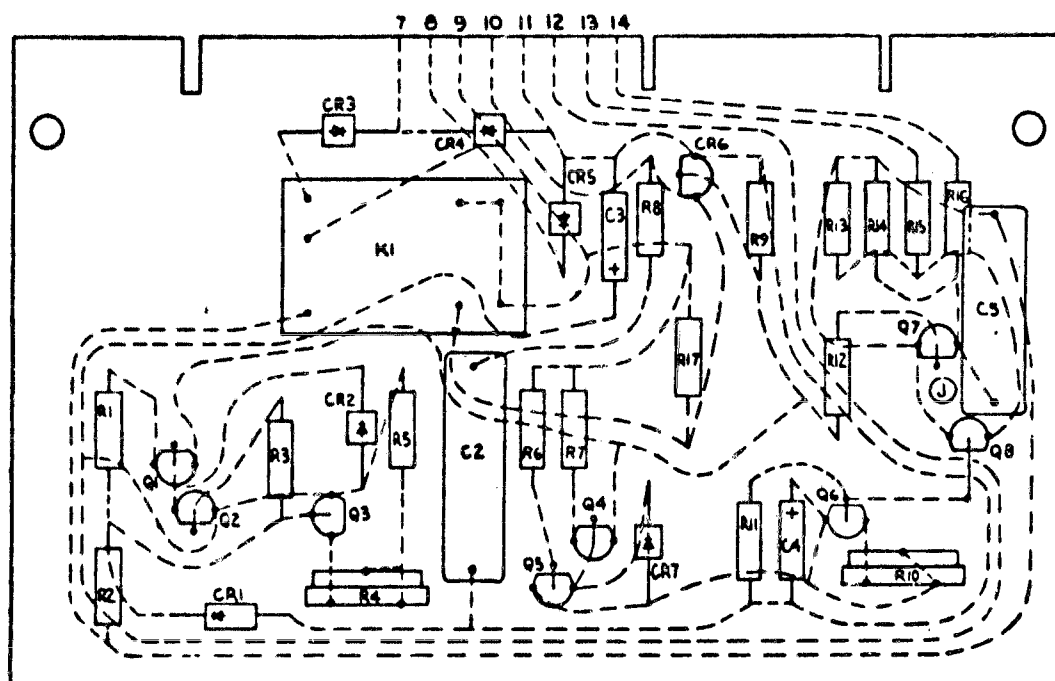
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	332-1268	1	Printed Circuit Board - Complete	R7	350-0398	1	Resistor (3,000-Ohm, 1/2 Watt)
TB1	332-1252	1	Terminal Block	R18, R16	350-0447	2	Resistor (330,000-Ohm, 1/2 Watt)
C1	355-0018	1	Capacitor (.47., 100 Volt)	R9, R10	350-0423	2	Resistor (33,000-Ohm, 1/2 Watt)
C2, C7	355-0005	2	Capacitor (.22 Mfd., 200 Volt)	R11, R12	352-0151	2	Resistor, Fixed (15,000-Ohm, 5 Watt)
C3, C9	355-0017	2	Capacitor (.47 Mfd., 400 Volt)	R13	350-1007	1	Resistor (6,800-Ohm, 2 Watt)
C4, C12	355-0006	2	Capacitor (.47 Mfd., 200 Volt)	R14	350-0443	1	Resistor (220,000-Ohm, 2 Watt)
C5, C8	355-0016	2	Capacitor (1 Mfd., 100 Volt)	R15, R27	350-0435	2	Resistor (100,000-Ohm, 1/2 Watt)
C6	355-0015	1	Capacitor (.1 Mfd., 200 Volt)	R17	351-0521	1	Resistor, Metal Film (13,000-Ohm, 1/4 Watt)
C10	355-0014	1	Capacitor (.047 Mfd., 200 Volt)	R18	303-0168	1	Potentiometer
C11	355-0020	1	Capacitor (.1 Mfd., 400 Volt)	R20, R22	351-0520	2	Resistor, Metal Film (28,000-Ohm, 1/4 Watt)
C13	356-0039	1	Capacitor (100 Mfd., 10 Volt)	R21	351-0522	1	Resistor, Metal Film (5,110-Ohm, 1/4 Watt)
CR4,5,6,7,8,9,10,11	357-0014	8	Rectifier, Silicon	R24	351-0523	1	Resistor, Metal Film (8,870-Ohm, 1/4 Watt)
CR12	359-0016	1	Diode, Zener (6.8 Volt)	R25	350-1011	1	Resistor (10,000-Ohm, 2 Watt)
CR13	359-0025	1	Diode, Zener (20 Volt)	R26	303-0164	1	Potentiometer
CR14	359-0026	1	Diode, Zener (18 Volt)	R28	350-0459	1	Resistor (1.0 Megohm, 1/2 Watt)
CR15	359-0015	1	Diode, Zener (24 Volt)				
K1	307-1063	1	Relay, Magnetic Reed				
Q1, Q2	362-0017	2	Transistor, Silicon				
Q3	361-0004	1	Transistor, Unijunction				
R1, R23	350-0355	2	Resistor (47-Ohm, 1/2 Watt)				
R2, R3	350-0351	2	Resistor (33-Ohm, 1/2 Watt)				
R4	350-1075	1	Resistor (4.7 Megohm, 2 Watt)				
R5	353-0040	1	Resistor, Fixed (270-Ohm, 10 Watt)				
R6	353-0039	1	Resistor, Fixed (5,000-Ohm, 15 Watt)				

# VOLTAGE REGULATOR BOARD - BEGIN SPEC H



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	332-1956	1	Board Assembly, Printed - Complete	R7	350-0398	1	Resistor - 1/2 Watt, 3,000-Ohm
C1, 14	355-0042	2	Capacitor - 47 Mfd, 250 Volt	R8, R16	350-0447	2	Resistor - 1/2 Watt, 330,000-Ohm
C2, C7	355-0043	2	Capacitor - 22 Mfd, 250 Volt	R10	351-0885	1	Resistor - 1/2 Watt, 51,100-Ohm
C3	355-0047	1	Capacitor - 47 Mfd, 400 Volt	R9, R11	352-0151	2	Resistor - Fixed 5 Watt, 15,000-Ohm
C4, C12	355-0044	2	Capacitor - 47 Mfd, 250 Volt	R12	351-0909	1	Resistor - 1/2 Watt, 90,900-Ohm
C5, C8	355-0046	2	Capacitor - 1 Mfd, 100 Volt	R13	350-0411	1	Resistor - 1/2 Watt, 10,000-Ohm
C6	355-0056	1	Capacitor - 33 Mfd, 250 Volt	R14	350-0443	1	Resistor - 1/2 Watt, 220,000-Ohm
C11	355-0048	1	Capacitor - 1 Mfd, 400 Volt	R15, R27	350-0435	2	Resistor - 1/2 Watt, 100,000-Ohm
C13	356-0039	1	Capacitor - Electrolytic, 100 Mfd, 10 Volt	R17	351-0293	1	Resistor, Metal Film - 1/4 Watt, 11,000-Ohm
CR3 Thru 11	357-0014	9	Rectifier - Silicon	R18	303-0210	1	Potentiometer - 5,000-Ohm, 1/2 Watt
CR12	359-0036	1	Diode - Zener 5.6 Volt	R20, 22, 29 & 30	351-0520	4	Resistor - 1/4 Watt, 28,000-Ohm
CR13	359-0025	1	Diode - Zener 20 Volt	R21	351-0522	1	Resistor - Metal Film - 1/4 Watt, 5,110-Ohm
CR14	359-0026	1	Diode - Zener 18 Volt	R24	351-0523	1	Resistor - Metal Film - 1/4 Watt, 8,870-Ohm
F2, F3	321-0204	2	Fuse, 1/4 Amp	R25, R31	350-1011	2	Resistor - 2 Watt, 10,000-Ohm
IC1	367-0005	1	Integrated Circuit	R26	303-0211	1	Potentiometer - 1/2 Watt, 100,000-Ohm
Q2	362-0017	1	Transistor - Silicon NPN	R28	350-0568	1	Resistor - 1/2 Watt, 47 Meg-Ohm
Q3	361-0004	1	Transistor - Unijunction	TB1	332-1252	1	Terminal Block
R1	350-0355	1	Resistor - 1/2 Watt, 47-Ohm	CR15	359-0015	1	Diode - Zener - 24 Volt
R2, R3	350-0351	2	Resistor - 1/2 Watt, 33-Ohm		321-0163	6	Clip - Fuse
R4	350-1075	1	Resistor - 2 Watt, 4.7 Meg-Ohm	K1	307-1063	1	Relay, Magnetic Reed
R5	353-0040	1	Resistor - Fixed 10 Watt, 270-Ohm	R19	350-1007	1	Resistor - 2 Watt, 6,800-Ohm
R6	353-0039	1	Resistor - Fixed 15 Watt, 5,000-Ohm				

# ENGINE CONTROL MONITOR (ONE FAULT LIGHT) (300-0679)



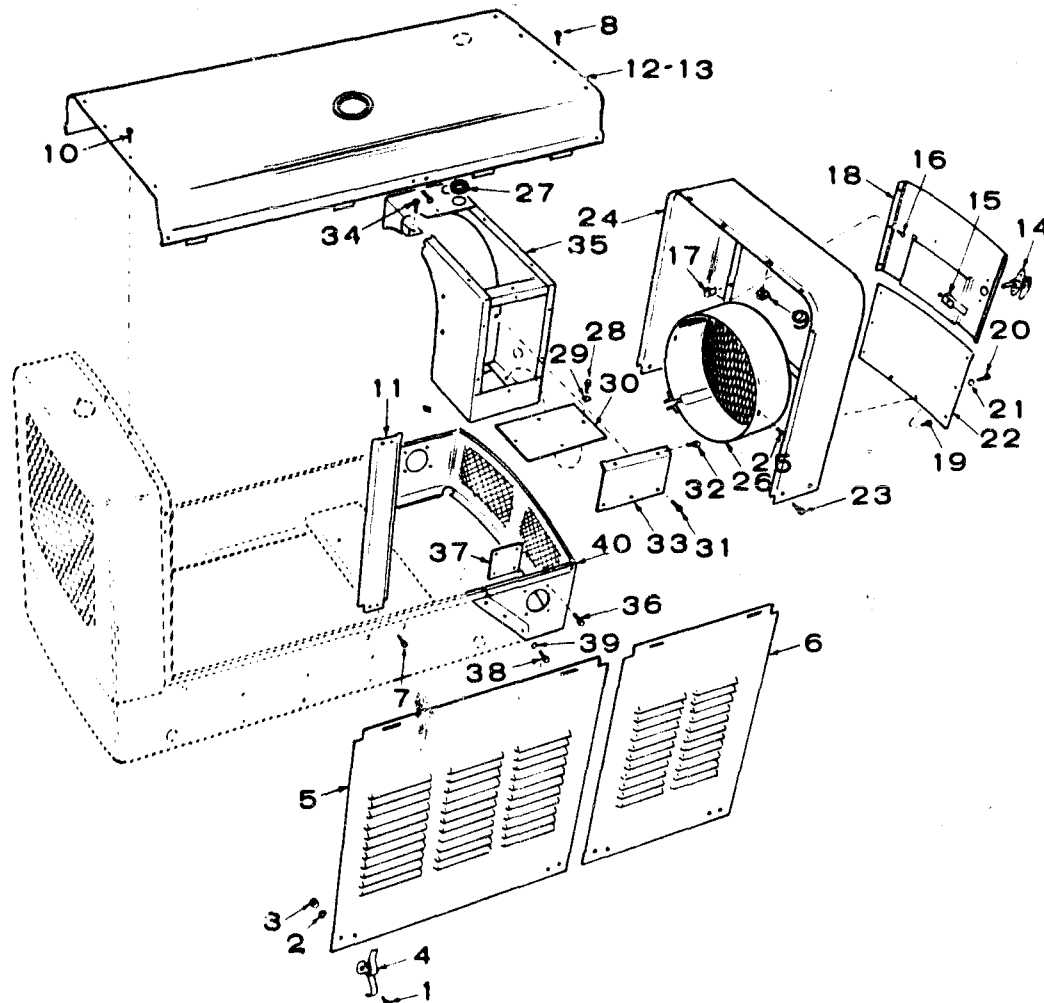
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	300-0679		Monitor, Engine Control 12 Volt
C1	355-0070	1	Capacitor (.022 Mfd., 400 Volt)
C2	355-0069	1	Capacitor (.15 Mfd., 100 Volt)
C3,6	355-0056	2	Capacitor (.33 Mfd., 250 Volt)
C4	356-0066	1	Capacitor, Electrolytic (47 Mfd., 20 Volt)
C5	356-0051	1	Capacitor, Electrolytic (6.8 Mfd., 35 Volt)
CR1-9	357-0004	9	Rectifier, Diode (400 MA, 400 Volt)
K1	307-1039	1	Relay, (12 Volt)
Q1	362-0048	1	Transistor
Q2	362-0044	1	Transistor
R1	303-0171	1	Potentiometer (100,000-Ohm)
R2,6	350-0121	2	Resistor (27,000-Ohm, 1/4 Watt)
R3,7	350-0137	2	Resistor (120,000-Ohm, 1/4 Watt)
R4	350-0099	1	Resistor (3300-Ohm, 1/4 Watt)
R5	303-0222	1	Potentiometer (50,000-Ohm)
R8,11, 13,14	350-0111	4	Resistor (10,000-Ohm, 1/4 Watt)
R9,16 18,19	350-0103	4	Resistor (4700-Ohm, 1/4 Watt)
R10	350-0095	1	Resistor (2200-Ohm, 1/4 Watt)
R12	350-0127	1	Resistor (47,000-Ohm, 1/4 Watt)
R15	350-0363	1	Resistor (100 Megohm, 1/2 Watt)
R17	350-0087	1	Resistor (1000-Ohm, 1/4 Watt)
U1,2	367-0025	2	Timer, Programmable
VR1	359-0002	1	Diode, Zener



## **OPTIONAL EQUIPMENT SECTION**

This section contains parts listing of factory installed options.  
**NOTE:** options may not be applicable to all models; for field installations, additional parts are usually required.

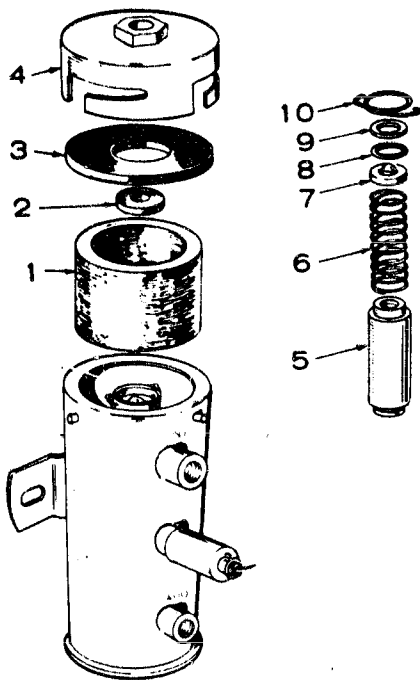
## HOUSING (Housed Sets) - OPTIONAL



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
HOUSED SETS - OPTIONAL (Includes following parts and unhoused set items indicated in pages 8,9,10)				20	813-0098	6	Screw, Machine - Round Head (#10-32 x 3/8")
1	813-0098	16	Screw, Machine - Round Head (#10-32 x 3/8")	21	850-0030	6	Washer, Lock - Spring (#10)
2	850-0030	16	Washer, Lock - Spring (#10)	22	405-1780	1	Panel, Access - Rear
3	870-0053	16	Nut, Hex (#10-32)	23	821-0014	4	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
4	406-0105	8	Clamp, Door	24	405-1812	1	Panel, Housing - Rear
5	405-1808	2	Door, Louvered - Engine Section	25	821-0010	4	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
6	405-1832	2	Door, Louvered - Generator Section	26	234-0369	1	Cover, End Bell - Generator
7	821-0014	4	Screw, Self-locking - Hex Head (5/16-18 x 1/2")	27	508-0001	2	Grommet, Rubber (3/4" ID x 1-9/32" OD)
8	821-0016	6	Screw, Self-locking - Hex Head (5/16-18 x 3/4")	28	813-0098	4	Screw, Machine - Round Head (#10-32 x 3/8")
9	870-0113	6	Nut, Clinch (5/16-18)	29	850-0030	4	Washer, Lock - Spring (#10)
10	821-0014	6	Screw, Self-locking - Hex Head (5/16-18 x 1/2")	30	301-3195	1	Plate, Blank - Bottom, Junction Box
11	405-1814	2	Support, Housing - Center	31	821-0010	3	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
12	405-1831	1	Panel, Housing - Top (Used with standard exhaust manifold)	32	821-0014	2	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
13	405-1844	1	Panel, Housing - Top (Used with water cooled exhaust manifold)	33	301-3196	1	Bracket, Support - Current Transformer Assembly
14	406-0157	1	Handle, Latch (with Keys)	34	821-0010	1	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
15	406-0089	1	Catch, Latch	35	301-3191	1	Box, Junction
16	809-0059	3	Screw, Tapping - Pan Head (#14 x 1/2")	36	821-0010	8	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
17	870-0106	3	Nut, Spring Sheet (#14)	37	403-0895	2	Plate, Cover
18	405-1777	1	Door, Access - Rear	38	800-0048	6	Screw, Cap - Hex Head (3/8-16 x 3/4")
19	821-0014	2	Screw, Self-locking - Hex Head (5/16-18 x 1/2")	39	850-0050	6	Washer, Lock - Spring (3/8)
				40	403-0894	1	Adapter, Chassis - Rear

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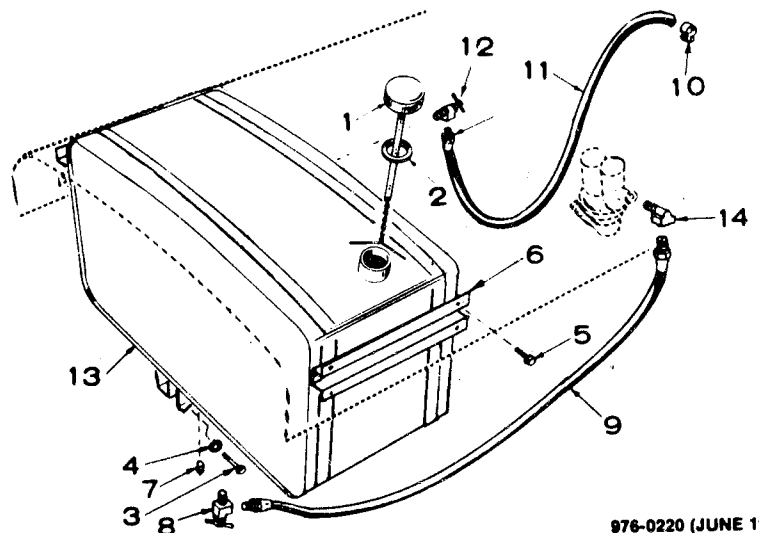
## ELECTRIC FUEL PUMP PARTS - OPTIONAL EQUIPMENT



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	149-0554	1	Pump, Fuel
1	149-1445	1	Filter
2	149-1447	1	Magnet
3	149-1446	1	Gasket, Cover
4	149-1453	1	Cover
5	149-1452	1	Plunger
6	149-0705	1	Spring, Plunger Return
7	149-1451	1	Spring Cup & Valve
8	149-1450	1	Gasket, Spring Cup
9	149-1449	1	Washer, Cup Gasket
10	149-1448	1	Retainer, Cup & Plunger

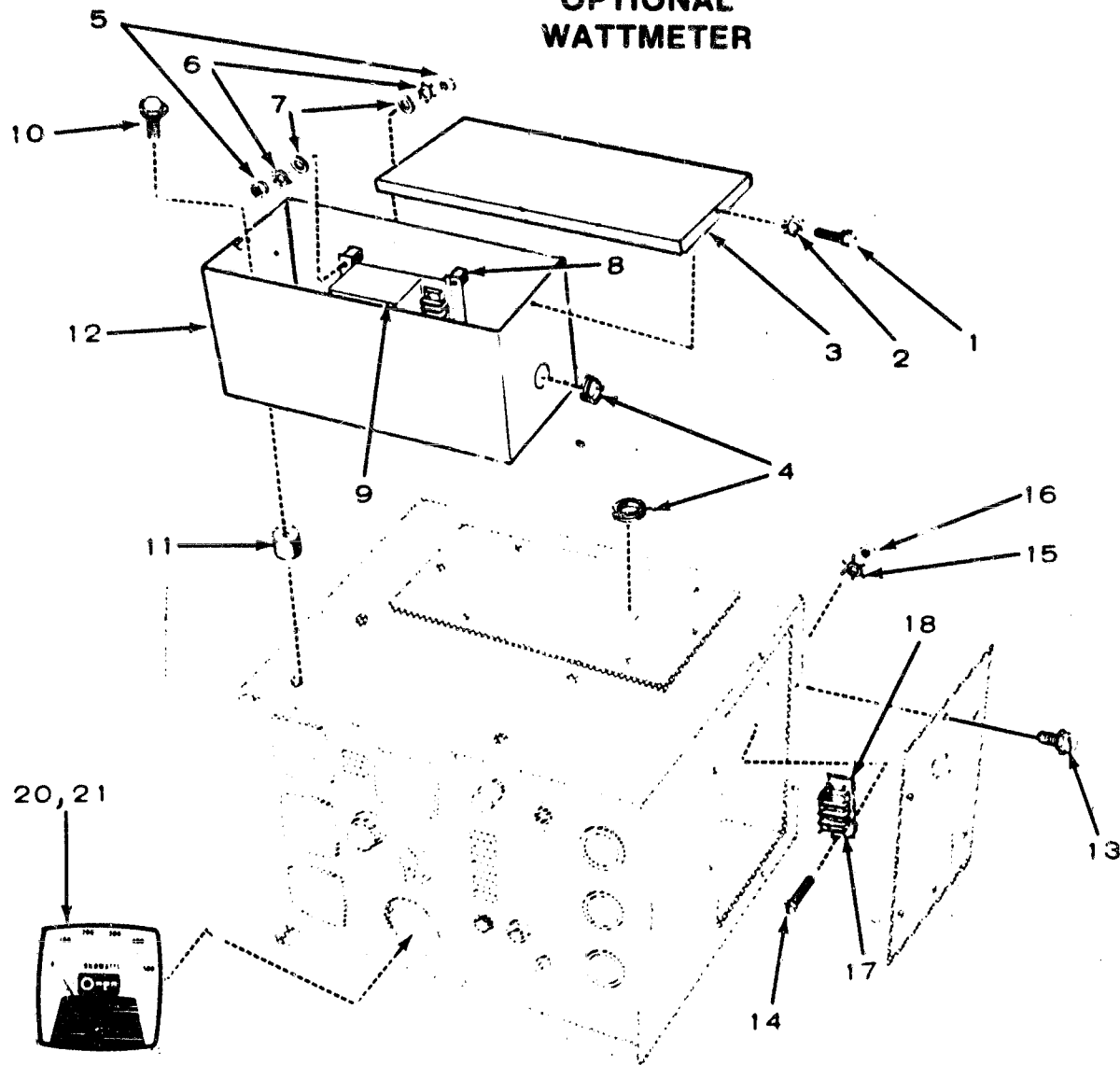
## MOUNTED FUEL TANK (Housed Sets Only) - OPTIONAL EQUIPMENT

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	159-0512	1	Cap and Indicator
2	159-0751	1	Gasket, Gas Cap
3	812-0158	2	Screw, Machine - Round Head (1/4-20 x 2")
4	850-0040	2	Washer, Lock - Spring (1/4)
5	821-0010	8	Screw, Self-Locking - Hex Head (1/4-20 x 1/2")
6	159-0489	1	Strap Assembly, Mounting
7	505-0057	1	Plug, Pipe - Square Head
8	504-0013	1	Valve, Globe
9	501-0007	1	Hose, Rubber
10	503-0685	1	Clamp, Hose
11	501-0009	1	Hose, Rubber
12	504-0007	1	Valve, Globe
13	159-0490	1	Tank, Fuel (20 gallon)
14	502-0002	1	Elbow, Pipe - 90°



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## OPTIONAL WATTMETER

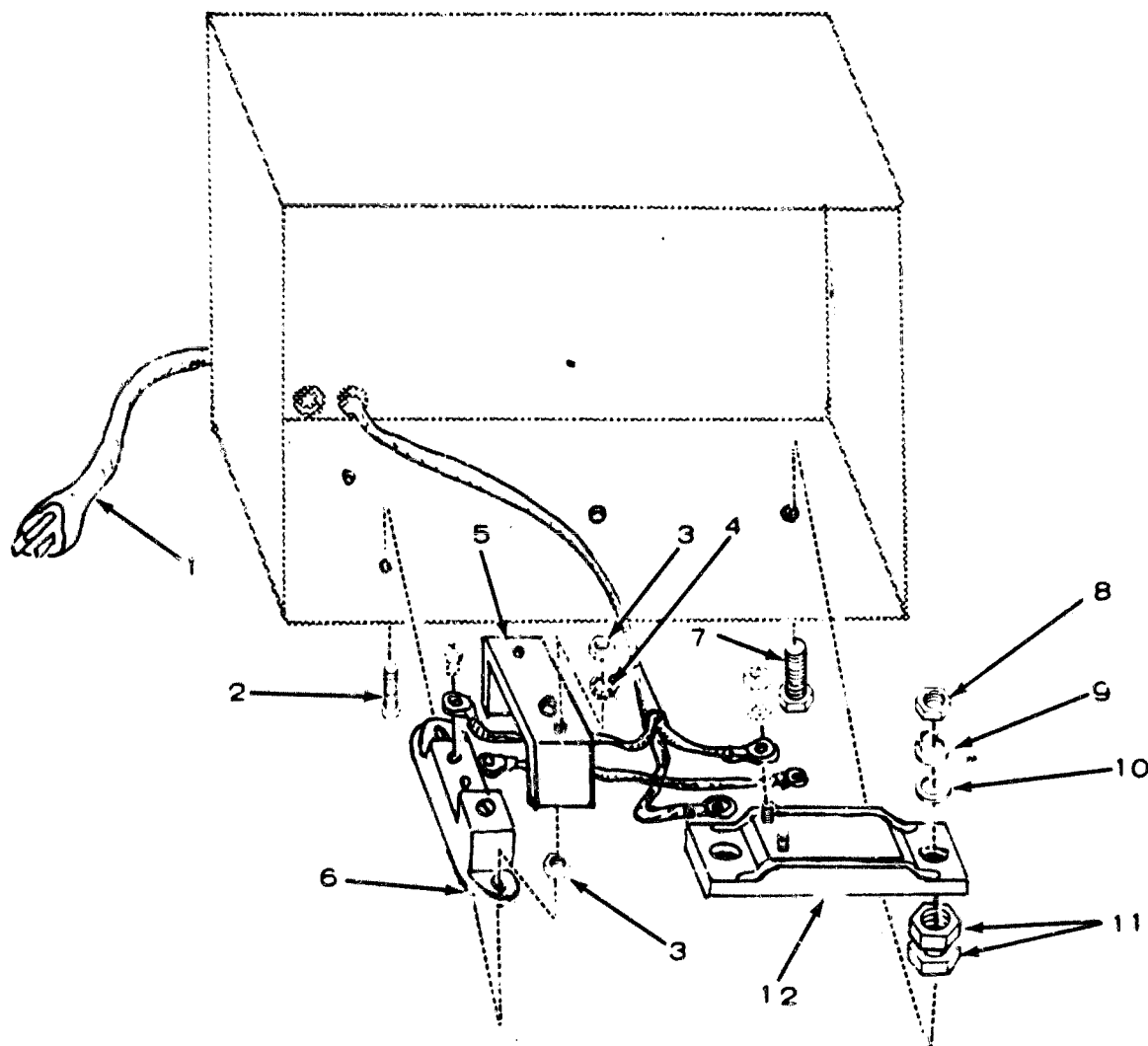


617 5344

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	815-0026	2	Screw, Machine - Truss Head (#10-32 x 3/8")
2	853-0008	2	Washer, Lock - External Tooth (#10)
3	301-3476	1	Cover - Transducer Box
4	508-0001	2	Grommet, Rubber (1-1/6" OD)
5	860-0008	8	Nut, Hex (#8-32)
6	853-0005	8	Washer, Lock - External Tooth (#8)
7	526-0003	8	Washer, Flat (11/64" ID x 3/8" OD x 1/32" Thk)
8	402-0354	4	Mount, Vibration
9	TRANSDUCER (Select As Required)		
	302-1082	1	60 Hertz
	302-1083	1	50 Hertz
10	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
11	402-0070	4	Mount, Vibration
12	301-3477	1	Box, Transducer
13	815-0350	6	Screw, Tapping - Hex Washer Head (#10-32 x 3/8")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
14	812-0063	4	Screw, Machine - Round Head (#6-32 x 1/2")
15	853-0003	4	Washer, Lock - External Tooth (#6)
16	860-0006	4	Nut, Hex (#6-32)
17	332-0609	1	Terminal, Strip
18	332-0610	1	Marker, Strip
20	302-1102	1	Wattmeter (Less Replaceable Dial)
21	DIAL, WATTMETER (Select As Required)		
	302-1103	1	Scale 0-35 kW
	302-1104	1	Scale 0-50 kW
	302-1105	1	Scale 0-70 kW
	302-1106	1	Scale 0-90 kW
	302-1107	1	Scale 0-115 kW
	302-1108	1	Scale 0-160 kW
	302-1109	1	Scale 0-180 kW
	302-1110	1	Scale 0-200 kW

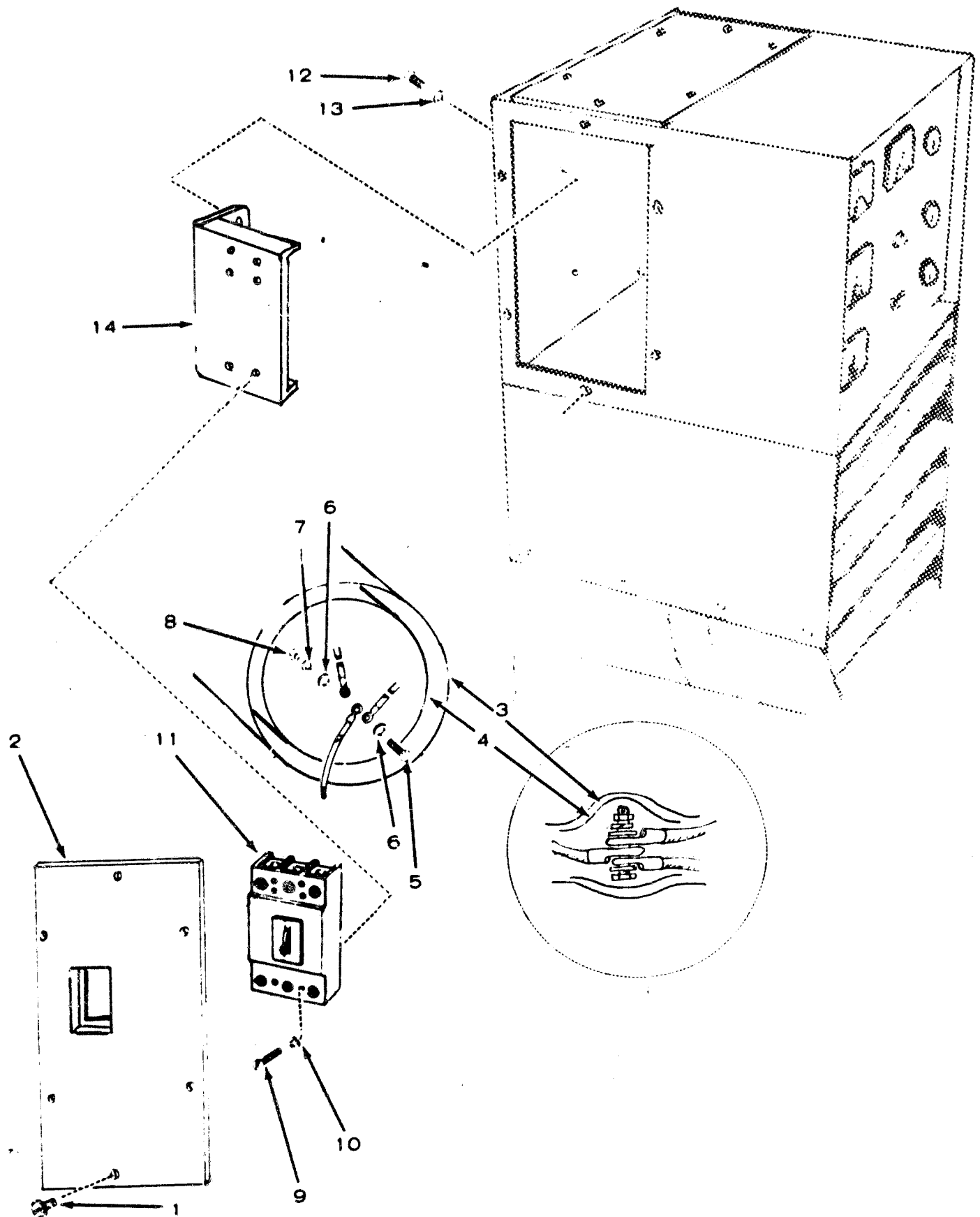
## OPTIONAL CONTROL HEATER INSTALLATION



625-0477

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	335-0110	1	Cable, Electrical (3 Wire)
2	812-0090	2	Screw, Machine - Round Head (#6-32 x 2-1/4")
3	860-0006	4	Nut, Hex (#6-32)
4	856-0001	2	Washer, Lock - EIT (#6)
5	301-1886	1	Cover, Thermostat
6	309-0128	1	Thermostat - Adjustable
7	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
8	862-0001	2	Nut, Hex (1/4-20)
9	850-0040	2	Washer, Lock - Spring (1/4)
10	526-0052	2	Washer, Flat (17/64" ID x 9/16" OD x 1/16" Thk)
11	862-0015	4	Nut, Hex (5/16-18) - Used As Spacers
12	333-0151	1	Heater - 75 Watt, 120 VAC, 300 Watt, 240 VAC

# **OPTIONAL CIRCUIT BREAKER (INSIDE CONTROL BOX)**



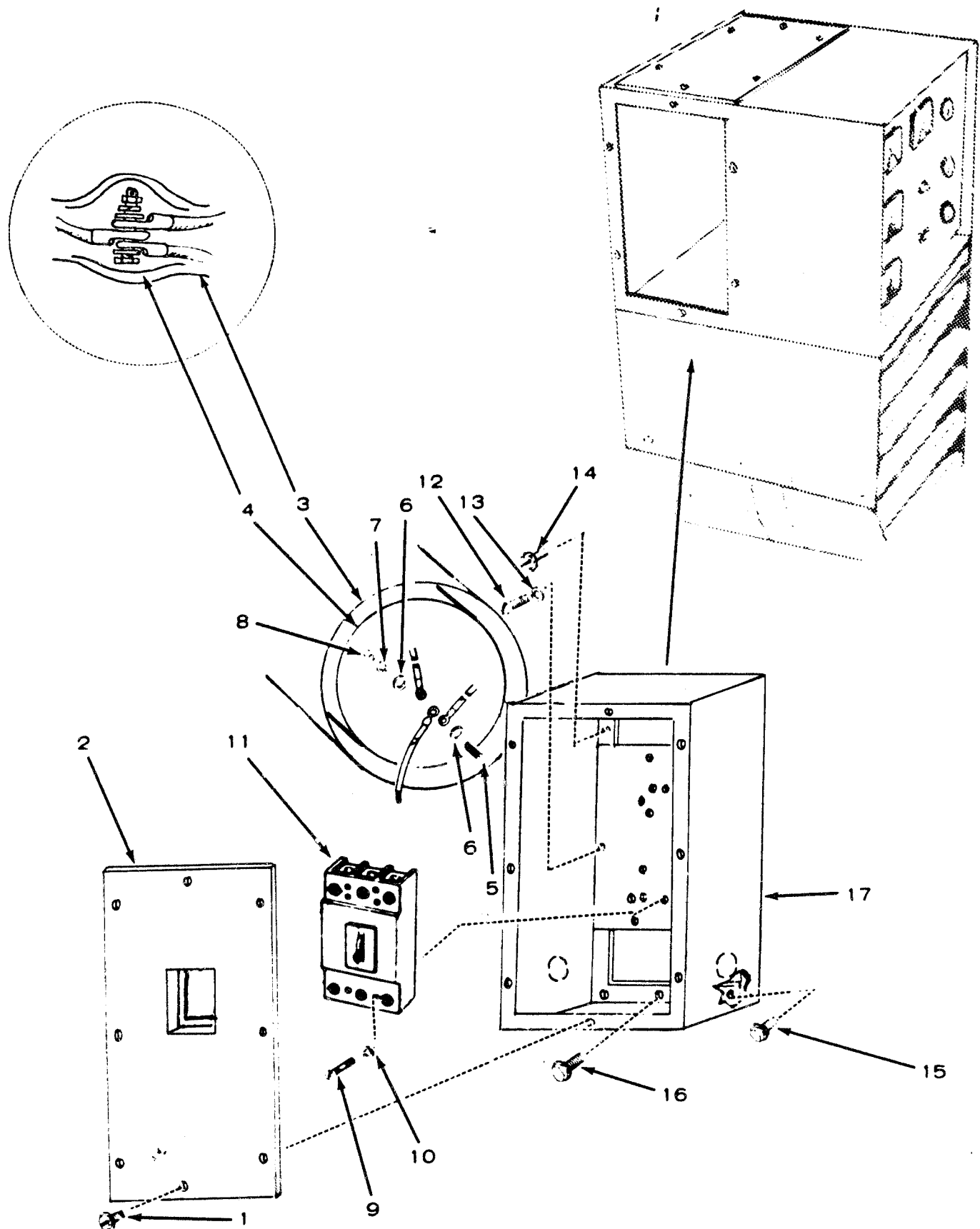
625-1027, 1585

976-0220 (JUNE 1980)

# **OPTIONAL CIRCUIT BREAKER (INSIDE CONTROL BOX)**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	815-0350	6	Screw, Tapping - Hex Washer Head (#10-32 x 3/8)
2	301-3192	1	Panel, Cover - Circuit Breaker
3	SLEEVING, INSULATION - SHRINKABLE (SELECT AS REQUIRED)		
	898-0863		3/4" ID
	898-0865		1" ID
	898-0875		1-1/2" ID
	898-0869		2" ID
4	SLEEVING, INSULATION - FIBER GLASS (SELECT AS REQUIRED)		
	898-0974		3/4" ID
	898-0976		1" ID
5	800-0028	5	Screw, Cap - Hex Head (5/16-18 x 1")
6	526-0022	10	Washer, Flat (21/64" ID x 9/16" OD x 1/16" Thk)
7	850-0045	5	Washer, Lock - Spring (5/16")
8	862-0015	5	Nut, Hex (5/16-18)
9	812-0094	4	Screw, Machine - Round Head (#8-32 x 3-5/8")
10	850-0025	4	Washer, Lock - Spring (#8)
11	CIRCUIT BREAKER (SELECT AS REQUIRED)		
	320-0344	1	175 AMP, 1 PH, 120/240 VAC
	320-0346	1	150 AMP, 3 PH, 120/208 - 120/240 VAC
	320-0347	1	175 AMP, 3 PH, 120/208 - 120/240 VAC
	320-0348	1	200 AMP, 3 PH, 120/208 - 120/240 VAC
	320-0349	1	225 AMP, 3 PH, 120/208 VAC
	320-0359	1	225 AMP, 1 PH, 120/240 VAC
	320-0379	1	90 AMP, 3 PH, 200/346 - 220/380 - 277/480 VAC
	320-0380	1	100 AMP, 3 PH, 200/346 - 220/380 - 277/480 VAC
	320-0384	1	60 AMP, 3 PH, 200/346 - 220/380 VAC
	320-0411	1	90 AMP, 3 PH, 120/240 VAC
	320-0412	1	100 AMP, 3 PH, 120/208 VAC
	320-0413	1	50 AMP, 3 PH, 277/480 VAC
	320-0414	1	70 AMP, 3 PH, 277/480 VAC
	320-0415	1	40 AMP, 3 PH, 347/600 VAC
	320-0416	1	60 AMP, 3 PH, 347/600 VAC
	320-0417	1	70 AMP, 3 PH, 347/600 VAC
	320-0418	1	90 AMP, 3 PH, 347/600 VAC
	320-0419	1	125 AMP, 3 PH, 200/346 - 220/380 VAC
	320-0425	1	150 AMP, 3 PH, 200/346 VAC
	320-0726	1	150 AMP, 3 PH, 120/208 - 120/240 VAC
	320-0823	1	50 AMP, 3 PH, 277/480 VAC
12	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1/2")
13	850-0040	2	Washer, Lock - Spring (1/4")
14	301-3197	1	Bracket, Mounting - Circuit Breaker

**OPTIONAL  
CIRCUIT BREAKER (IN SEPARATE  
CIRCUIT BREAKER BOX)**

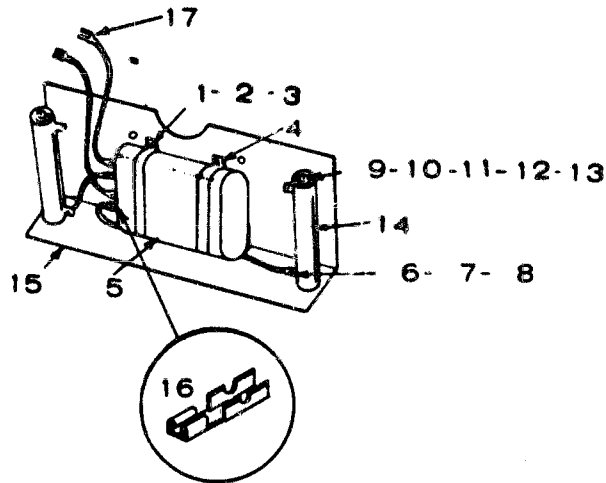




# **OPTIONAL CIRCUIT BREAKER (IN SEPARATE CIRCUIT BREAKER BOX)**

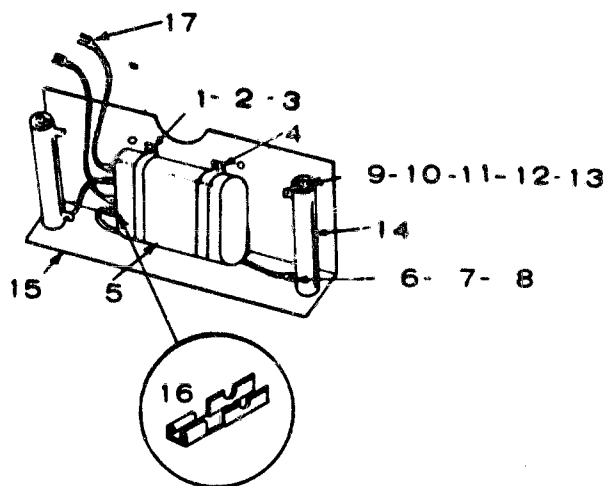
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	
1	815-0350	8	Screw, Tapping - Hex Washer Head (#10-32 x 3/8)	11	CIRCUIT BREAKER (SELECT AS REQUIRED)			
2	301-3272	1	Cover - Circuit Breaker Box	320-0269	1	225 AMP, 3PH, 200/346-220/380 - 277/480 - 347 600 VAC		
3	SLEEVING, INSULATION - SHRINKABLE (SELECT AS REQUIRED)			320-0401	1	300 AMP, 3 PH, 200/346 - 220/380 - 277/480 VAC		
	898-0863	3/4"	ID	320-0405	1	400 AMP, 3 PH, 200/346 VAC		
	898-0865	1"	ID	320-0420	1	300 AMP, 1 PH, 120/240 VAC		
	898-0875	1-1/2"	ID	320-0421	1	350 AMP, 1 PH, 120/240 VAC		
	898-0869	2"	ID	320-0422	1	250 AMP, 3 PH, 120/240 VAC		
4	SLEEVING, INSULATION — FIBER GLASS (SELECT AS REQUIRED)			320-0423	1	300 AMP, 3 PH, 120/208 - 120/240 VAC		
	898-0974	3/4"	ID	320-0424	1	100 AMP, 3 PH, 347/600 VAC		
	898-0976	1"	ID	320-0425	1	150 AMP, 3 PH, 200/346 - 277/480 - 347 600 VAC		
5	800-0028	5	Screw, Cap - Hex Head (5/16-18 x 1")	320-0426	1	175 AMP, 3 PH, 200/346 - 220/380 - 277 480 - 347 300 VAC		
6	526-0022	10	Washer, Flat (21/64" ID x 9/16" OD x 1/16" Thk)					
7	850-0045	5	Washer, Lock - Spring (5/16")					
8	862-0015	5	Nut, Hex (5/16-18)	320-0446	1	125 AMP, 3 PH, 347 600 VAC		
9	SCREW, MACHINE - ROUND HEAD (SELECT AS REQUIRED)			320-0447	1	200 AMP, 3 PH, 200/346 - 220/380 - 277 480 - 347 600 VAC		
	812-0156	4	1/4-20 x 1-1/2"					
	812-0157	4	1/4-20 x 1-3/4"	320-0448	1	350 AMP, 3 PH, 120/208 - 120/240 VAC		
	812-0182	4	5/16-18 x 1-1/2"					
	812-0183	4	5/16-18 x 1-3/4"	320-0449	1	400 AMP, 3 PH, 120/208 - 120/240 VAC		
10	WASHER LOCK - SPRING (SELECT AS REQUIRED)							
	850-0040	4	1/4"	320-0518	1	700 AMP, 3 PH, 120/208 VAC		
	850-0045	4	5/16"	320-0523	1	350 AMP, 3 PH, 200/346 - 220/380 VAC		
				320-0598	1	500 AMP, 3 PH, 120/208 - 120/240 VAC		
				320-0599	1	600 AMP, 3 PH, 120/208 - 120/240 VAC		
				320-0626	1	250 AMP, 3 PH, 200/346 - 220/380 - 277 480 VAC		
				320-0705	1	400 AMP, 1 PH, 120/240 VAC		
				12	813-0103	2	Screw, Machine - Round Head (#10-32 x 3/4")	
				13	850-0030	2	Washer, Lock - Spring (#10)	
				14	814-0350	3	Screw, Tapping - Hex Washer Head (#10-32 x 3/8")	
				15	821-0010	1	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")	
				16	821-0014	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")	
				17	301-3271	1	Box - Circuit Breaker	

## VOLTAGE REGULATOR FILTER - OPTIONAL



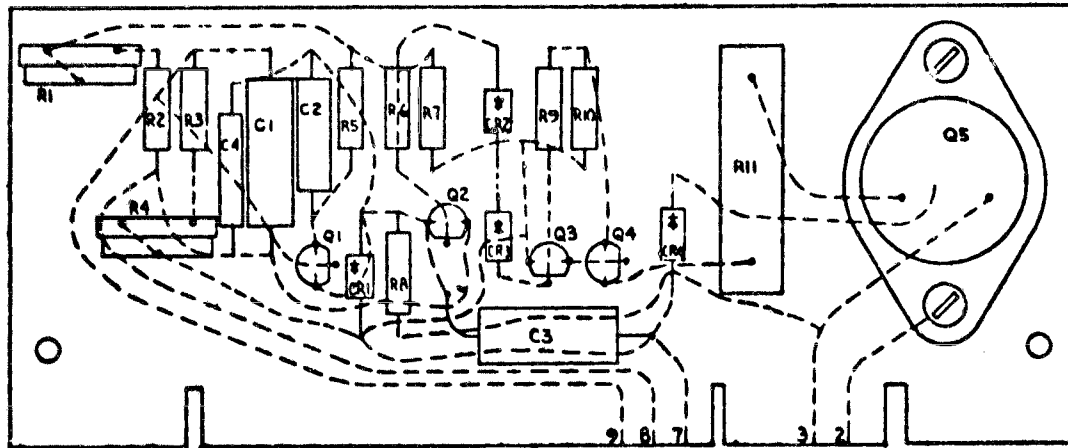
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	232-2694	1	Spec B through F
	232-2695	1	Begin Spec G
1	SCREW, MACHINE - ROUND HEAD		
	812-0061	4	(#6-32 x 3/8") Spec B through F
	813-0098	4	(#10-32 x 3/8") Begin Spec G
2	WASHER, LOCK		
	850-0020	4	(#6) Spec B through F
	850-0030	4	(#10) Begin Spec G
3	NUT, HEX		
	860-0006	4	(#6-32) Spec B through F
	870-0053	4	(#10-32) Begin Spec G
4	312-0189	2	Bracket, Hold-down - Capacitor
5	312-0188	1	Capacitor, Plastic Dielectric, Metal Case (15 MFD, 440 VAC)
6	815-0001	4	Screw, Machine - Binding Head, Brass (#6-32 x 1/4")
7	853-0003	4	Washer, Lock - External Tooth (#6)
8	860-0006	4	Nut, Hex (#6-32) - Spec B through F
9	812-0165	2	Screw, Machine - Round Head (1/4-20 x 4-1/2")
10	304-0427	4	Washer, Shoulder - Centering
11	304-0292	2	Insulator, Disk
12	850-0040	2	Washer, Lock - Spring (1/4)
13	862-0001	2	Nut, Hex (1/4-20)
14	354-0025	2	Resistor, Wirewound (10-Ohm, 100 Watts, 5%)
15	232-2218	1	Bracket, Angle - Mounting
16	332-0529	4	Terminal, Receptacle
17	332-1279	8	Terminal, Crimp

## VOLTAGE REGULATOR FILTER - OPTIONAL



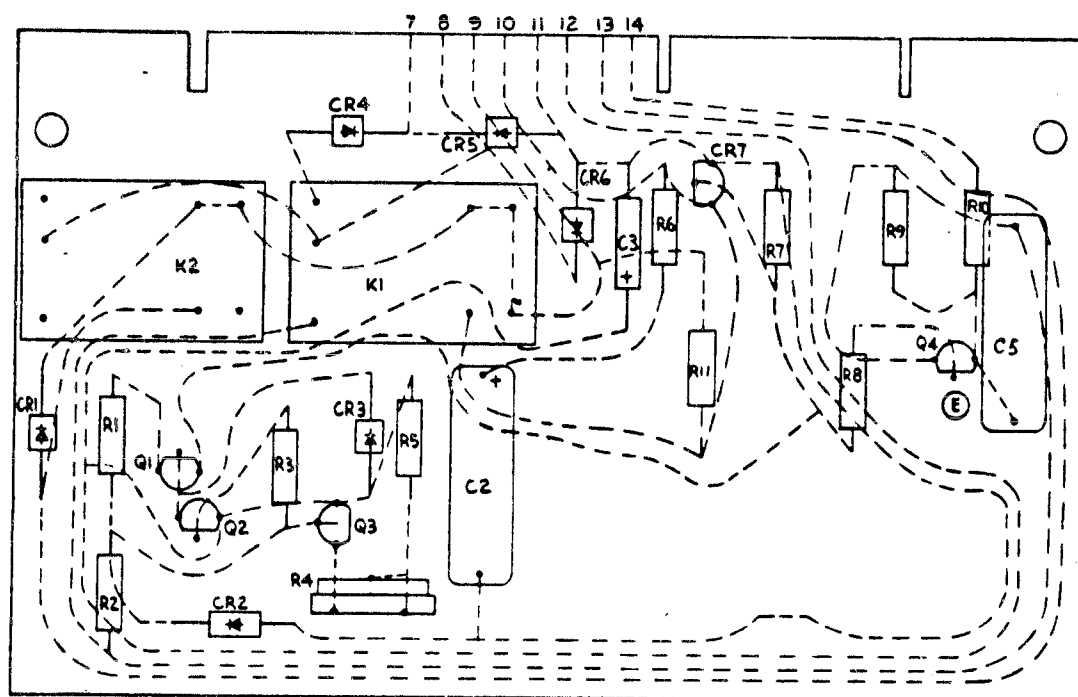
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	232-2694	1	Spec B through F
	232-2695	1	Begin Spec G
1	SCREW, MACHINE - ROUND HEAD		
	812-0061	4	(#6-32 x 3/8") Spec B through F
	813-0098	4	(#10-32 x 3/8") Begin Spec G
2	WASHER, LOCK		
	850-0020	4	(#6) Spec B through F
	850-0030	4	(#10) Begin Spec G
3	NUT, HEX		
	860-0006	4	(#6-32) Spec B through F
	870-0053	4	(#10-32) Begin Spec G
4	312-0189	2	Bracket, Hold-down - Capacitor
5	312-0188	1	Capacitor, Plastic Dielectric, Metal Case (15 MFD, 440 VAC)
6	815-0001	4	Screw, Machine - Binding Head, Brass (#6-32 x 1/4")
7	853-0003	4	Washer, Lock - External Tooth (#6)
8	860-0006	4	Nut, Hex (#6-32) - Spec B through F
9	812-0165	2	Screw, Machine - Round Head (1/4-20 x 4-1/2")
10	304-0427	4	Washer, Shoulder - Centering
11	304-0292	2	Insulator, Disk
12	850-0040	2	Washer, Lock - Spring (1/4)
13	862-0001	2	Nut, Hex (1/4-20)
14	354-0025	2	Resistor, Wirewound (10-Ohm, 100 Watts, 5%)
15	232-2218	1	Bracket, Angle - Mounting
16	332-0529	4	Terminal, Receptacle
17	332-1279	8	Terminal, Crimp

## CRANKER CYCLE CONTROL (OPTIONAL)



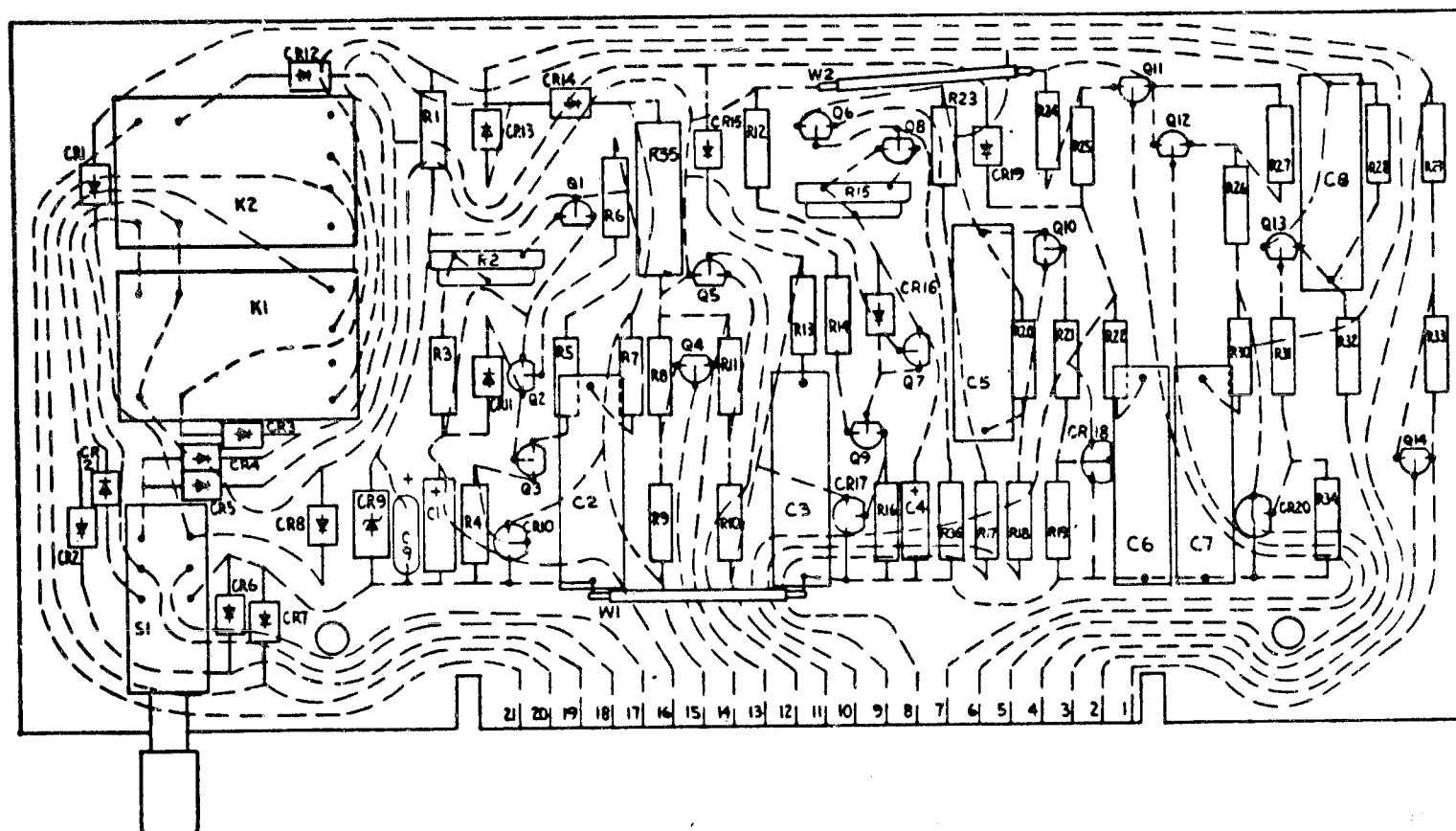
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	300-0714		Control, Cranker Cycle - 12 Volt	R3	350-0548	1	Resistor, Composition (10,000-Ohm, 1/2 Watt, 10%)
C1	356-0039	1	Capacitor, Electrolytic (100 Mfd., 10 Volt)	R4	303-0171	1	Potentiometer (100,000-Ohm, 1/4 Watt)
C2	355-0029	1	Capacitor, Plastic Dielectric (.015 Mfd., 100 VDC, 10%)	R5	350-0558	1	Resistor, Composition (68,000-Ohm, 1/2 Watt, 10%)
CR1	359-0027	1	Diode, Zener	R6	350-0420	1	Resistor, Composition (24,000-Ohm, 1/2 Watt, 5%)
CR2	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R7	350-0546	1	Resistor, Composition (6800-Ohm, 1/2 Watt, 10%)
CR3	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R8	350-0520	1	Resistor, Composition (47-Ohm, 1/2 Watt, 5%)
CR4	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R9	350-0548	1	Resistor, Composition (10,000-Ohm, 1/2 Watt, 10%)
H1	812-0061	2	Screw, Machine, Round Head (#6-32 x 3/8")	R10	350-0500	1	Resistor, Composition (1-Ohm, 1/2 Watt, 10%)
H2	853-0003	2	Washer, Lock - External Tooth (#6)	R11	352-0152	1	Resistor, Wirewound (25-Ohm, 5 Watt, 5%)
H3	860-0006	2	Nut, Hex (#6-32)	C3	356-0045	1	Capacitor, Electrolytic (25 Mfd., 15 Volt)
Q1	362-0008	1	Transistor	C4	355-0010	1	Capacitor, Composition (.0022 Mfd., 100 Volt)
Q2	362-0008	1	Transistor				
Q3	362-0017	1	Transistor				
Q4	362-0026	1	Transistor				
Q5	362-0033	1	Transistor				
R1	303-0171	1	Potentiometer (100,000-Ohm, 1/4 Watt)				
R2	350-0560	1	Resistor, Composition (0.1 Megohm, 1/2 Watt, 10%)				

# ENGINE CONTROL MONITOR - PENN STATE (1 FAULT LIGHT) OPTIONAL



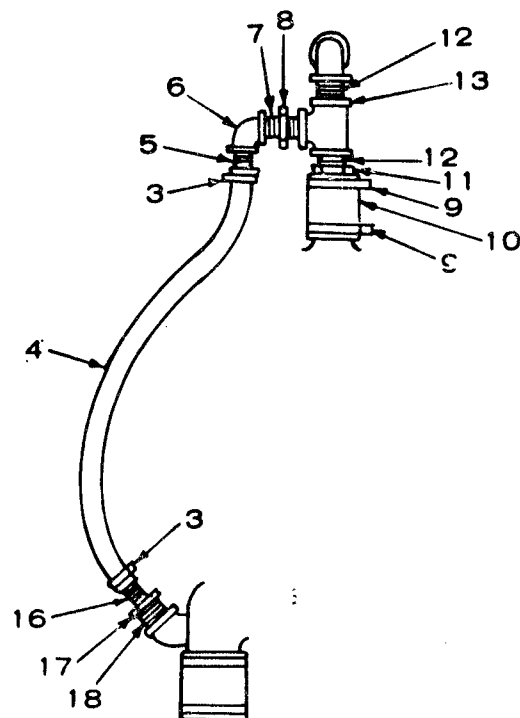
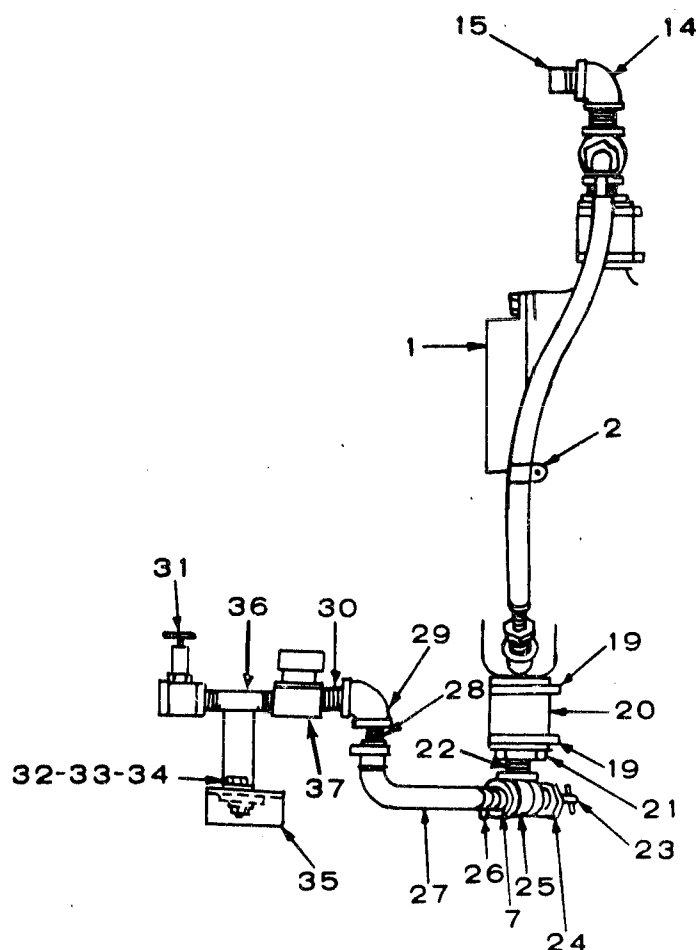
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	300-0730		Monitor, Engine Control - 12 Volt (Penn State)	R1	350-0536	1	Resistor, Composition (1000-Ohm, 1/2 Watt, 10%)
C1			Not Used	R2	350-0526	1	Resistor, Composition (100-Ohm, 1/2 Watt, 10%)
C2	355-0005	1	Capacitor, Plastic Dielectric (.22 Mfd., 200 VDC, 10%)	R3	350-0552	1	Resistor, Composition (22,000-Ohm, 1/2 Watt, 10%)
C3	356-0040	1	Capacitor, Electrolytic (10 Mfd., 20 Volt)	R4	303-0169	1	Potentiometer (3.5 Megohm, 1/4 Watt, 30%)
C4			Not Used	R5	350-0572	1	Resistor, Composition (1 Megohm, 1/2 Watt, 10%)
C5	355-0005	1	Capacitor, Plastic Dielectric (.22 Mfd., 200 VDC, 10%)	R6	350-0505	1	Resistor, Composition (2.7-Ohm, 1/2 Watt, 10%)
CR1	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R7	350-0517	1	Resistor, Composition (27-Ohm, 1/2 Watt, 10%)
CR2	359-0027	1	Diode, Zener (1 Watt, 7.5 Volt, 5%)	R8	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR3	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R9	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR4	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R10	350-0540	1	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
CR5	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R11	350-0971	1	Resistor, Composition (220-Ohm, 2 Watt, 5%)
CR6	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)				
CR7	364-0017	1	Diode, Rectifier (8 Amp, 30 Volt)				
K1	307-1039	1	Relay, Armature (12 Volt)				
K2	307-1039	1	Relay, Armature (12 Volt)				
Q1	361-0003	1	Transistor				
Q2	362-0025	1	Transistor				
Q3	362-0025	1	Transistor				
Q4	362-0008	1	Transistor				

# ENGINE CONTROL MONITOR (5 Fault Lights) - OPTIONAL



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	300-0681		Monitor, Engine Control - 12 Volt - Optional	R2,15	303-0169	2	Potentiometer (3.5 Megohm, 1/4 Watt, 30%)
C1	356-0040	1	Capacitor, Electrolytic (10 Mfd. 20 Volt)	R3	350-0572	1	Resistor, Composition (1 Megohm, 1/2 Watt, 10%)
C2,3,5,6,7,8	355-0043	6	Capacitor, Plastic Dielectric (.22 Mfd., 200 VDC, 10%)	R4,16,19,34	350-0517	4	Resistor, Composition (27-Ohm, 1/2 Watt 10%0
C4	356-0030	1	Capacitor, Electrolytic (1 Mfd., 35 Volt)	R5, 14	350-0536	2	Resistor, Composition (1000-Ohm, 1/2 Watt, 10%)
C9	356-0066	1	Capacitor, Electrolytic (47 Mfd., 20 Volt)	R6	350-0548	1	Resistor, Composition (10,000-Ohm, 1/2 Watt, 10%)
CR1-8, 11-16, 19,21	357-0004	16	Diode, Rectifier (1 Amp, 400 Volt)	R7,13,22,30	350-0505	4	Resistor, Composition (2.7-Ohm, 1/2 Watt, 10%)
CR9	359-0027	1	Diode, Zener (1 Watt, 7.5 Volt, 5%)	R8,11,20,21,23,24,27,28,31,33	350-0529	10	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR10,17,18,20	364-0017	4	Diode, Rectifier (8 Amp, 30 Volt)	R9,17,18,25,29,32,36	350-0540	7	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
K1,2	307-1039	2	Relay, Armature (12 Volt)	R10,26	350-0380	2	Resistor, Composition (510-Ohm, 1/2 Watt, 5%)
Q1,2,7,8	362-0031	4	Transistor	R12	350-0552	1	Resistor, Composition (22,000-Ohm, 1/2 Watt 10%)
Q3,9	361-0003	2	Transistor	R35	350-1128	1	Resistor, Composition (220-Ohm, 2 Watt, 10%)
Q4,5,6,10,11,12,13,14	362-0008	8	Transistor	S1	308-0280	1	Switch, Push - DPDT (1A, 28 VDC/45A, 115 VAC)
R1	350-0526	1	Resistor, Composition (150-Ohm, 1/2 Watt, 10%)				

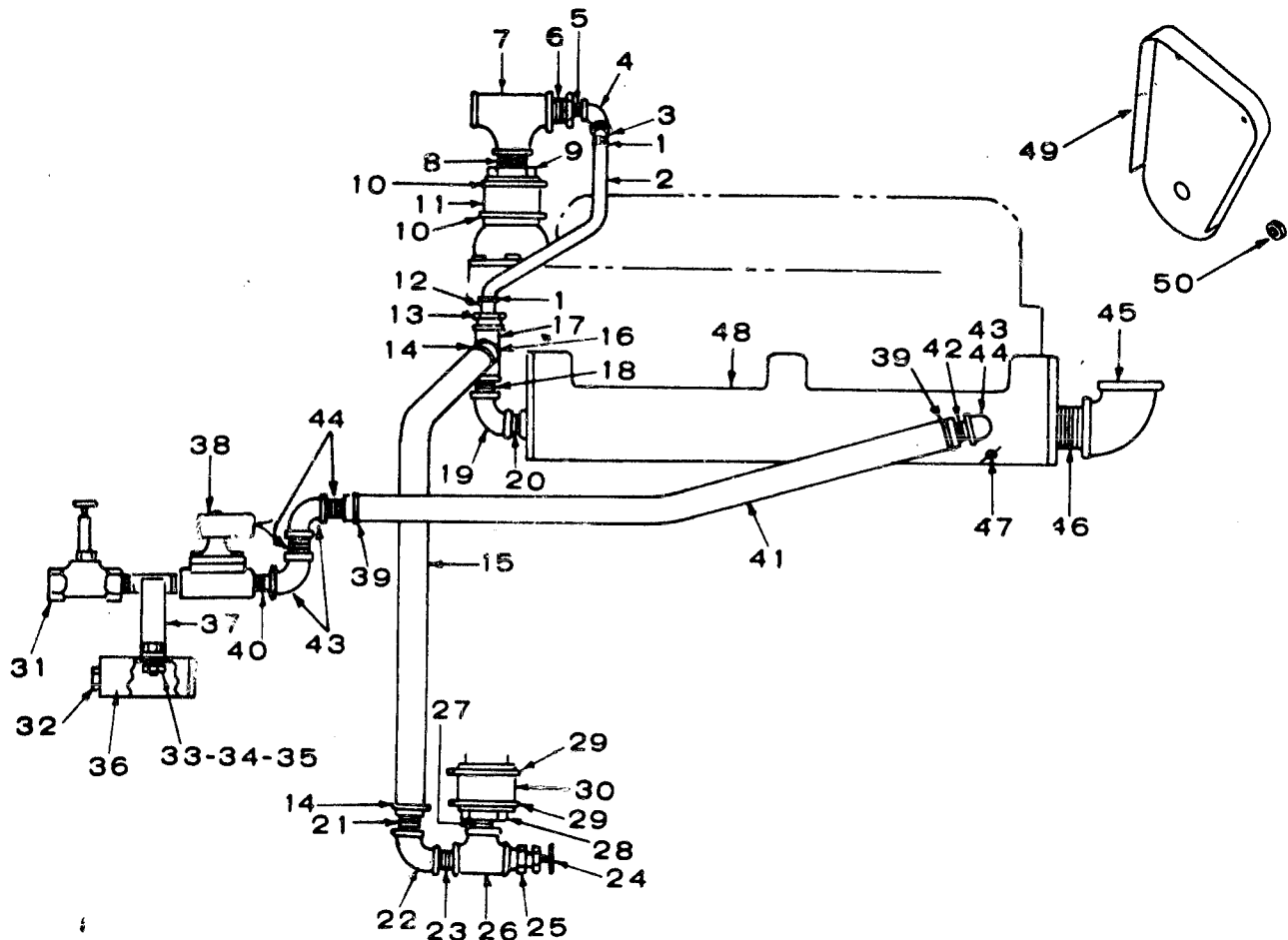
# 179-0319 INSTALLATION CITY WATER COOLING - OPTIONAL EQUIPMENT



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0319		Installation of City Water Cooling
1	130-0785	1	Guard, Belt
2	148-0274	1	Bracket, Hose Support
3	503-0032	2	Clamp, Hose
4	503-0110	As Req.	Hose, Rubber (1/2" ID) - 30" Required
5	505-0010	1	Nipple, Pipe - HALF (1/4" NPT x 1")
6	505-0038	1	Elbow, Pipe - 90° (1/4" NPT)
7	505-0099	1	Nipple, Pipe - Close (1/4" NPT x 7/8")
8	505-0020	1	Reducer, Pipe (3/4" NPT x 1/4" NPT)
9	503-0365	2	Clamp, Hose
10	503-0826	As Req.	Hose, Rubber (1-3/4" ID) - 3" Required
11	110-1543	1	Adapter, Hose to Pipe
12	505-0102	2	Nipple, Pipe - Close (3/4" NPT x 1-3/8")
13	505-0166	1	Tee, Pipe (3/4" NPT)
14	505-0132	1	Elbow, Pipe - 90° (3/4" NPT)
15	505-0324	1	Nipple, Pipe - HALF (3/4" NPT x 2")
16	505-0010	1	Nipple, Pipe - Half (1/4" NPT x 1")
17	505-0017	1	Reducer, Pipe (3/8" NPT x 1/4" NPT)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
18	505-0119	1	Elbow, Pipe - 45° Street (3/8" NPT)
19	503-0365	2	Clamp, Hose
20	503-0826	As Req.	Hose, Rubber (1-3/4" ID) - 3" Required
21	110-0576	1	Adapter, Hose to Pipe
22	505-0100	1	Nipple, Pipe - Close (1/2" NPT x 1-1/8")
23	504-0003	1	Cock, Drain (1/4" NPT)
24	505-0018	1	Reducer, Pipe (1/2" NPT x 1/4" NPT)
25	505-0108	1	Tee, Pipe (1/2" NPT)
26	503-0189	2	Clamp, Hose
27	503-0191	As Req.	Hose, Rubber (3/4" ID) - 11" Required
28	505-0185	2	Nipple, Pipe - Half (1/2" NPT x 1-1/2")
29	505-0040	1	Elbow, Pipe - 90° (1/2" NPT)
30	505-0100	1	Nipple, Pipe - Close (1/2" NPT x 1-1/8")
31	504-0019	1	Valve, Globe
32	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
33	850-0040	2	Washer, Lock - Spring (1/4")
34	862-0001	2	Nut, Hex (1/4-20)
35	130-0499	1	Bracket, Angle
36	110-0526	1	Bracket & Nipple Assembly
37	307-0833	1	Valve, Solenoid

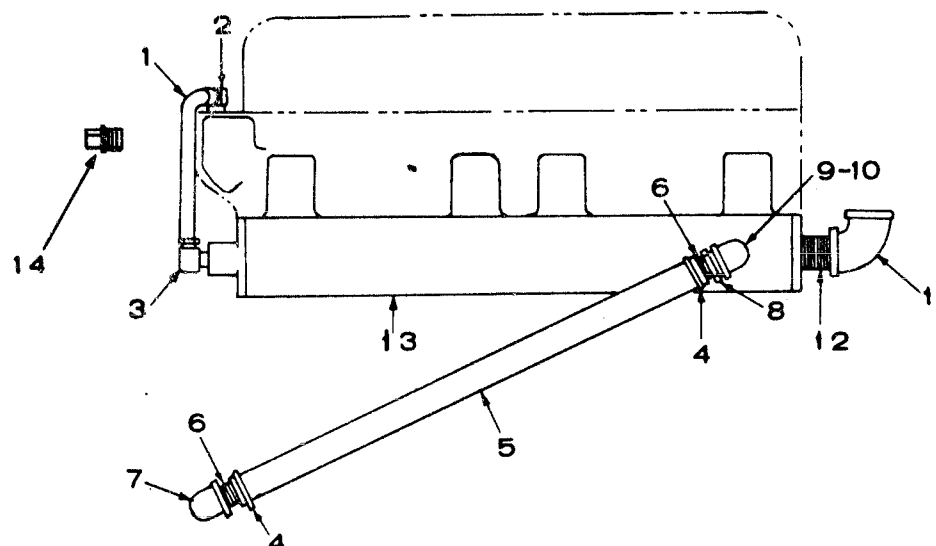
# 179-0256 INSTALLATION CITY WATER COOLING WITH WATER COOLED EXHAUST MANIFOLD - OPTIONAL EQUIPMENT



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0256		Installation of City Water Cooling with Water Cooled Exhaust Manifold	25	505-0019	1	Reducer, Pipe (1/2" NPT x 3/8" NPT)
1	503-0183	2	Clamp, Hose	26	505-0108	1	Tee, Pipe (1/2" NPT)
2	503-0119	As Req.	Hose, Rubber (1/2" ID) - 12" Required	27	505-0100	1	Nipple, Pipe - Close (1/2" NPT)
3	505-0302	1	Nipple, Pipe - Half (1/4" NPT x 1-1/2")	28	110-0576	1	Adapter, Hose to Pipe
4	505-0038	1	Elbow, Pipe - 90° (1/4" NPT)	29	503-0311	2	Clamp, Hose
5	505-0099	1	Nipple, Pipe - Close (1/4" NPT)	30	503-0356	As Req.	Hose, Rubber (1-3/4" ID) - 3" Required
6	505-0020	1	Reducer, Pipe (3/4" NPT x 1/4" NPT)	31	504-0019	1	Valve, Globe
7	505-0166	1	Tee, Pipe (3/4" NPT)	32	821-0014	6	Screw, Self-locking - Hex Washer Head (5/16-18 x 1 1/2")
8	505-0102	1	Nipple, Pipe - Close (3/4" NPT)	33	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
9	110-1543	1	Adapter, Hose to Pipe	34	850-0040	2	Washer, Lock - Spring (1/4")
10	503-0311	2	Clamp, Hose	35	862-0001	2	Nut, Hex (1/4-20)
11	503-0356	As Req.	Hose, Rubber (1-3/4" ID) - 3" Required	36	130-0499	1	Bracket, Angle
12	505-0302	1	Nipple, Pipe - Half (1/4" NPT x 1-1/2")	37	110-0526	1	Bracket & Nipple Assembly
13	505-0018	1	Reducer, Pipe (1/2" NPT x 1/4" NPT)	38	307-0833	1	Valve, Globe
14	503-0189	2	Clamp, Hose	39	503-0189	2	Clamp, Hose
15	503-0191	As Req.	Hose, Rubber (5/8" ID) - 24" Required	40	505-0185	1	Nipple, Pipe - Half (1/2" NPT x 1-1/2")
16	505-0185	1	Adapter (1-3/4 x 1/2")	41	503-0191	As Req.	Hose, Rubber (5/8" ID) - 38" Required
17	505-0108	1	Tee, Pipe (1/2" NPT)	42	505-0185	1	Nipple, Pipe - Half (1/2" NPT x 1-1/2")
18	505-0100	1	Nipple, Pipe - Close (1/2" NPT)	43	505-0040	2	Elbow, Pipe - 90° (1/2" NPT)
19	505-0040	1	Elbow, Pipe - 90° (1/2" NPT)	44	505-0100	2	Nipple, Pipe - Close (1/2" NPT)
20	505-0100	1	Nipple, Pipe - Close (1/2" NPT)	45	505-0175	1	Elbow, Pipe - 90° (2" NPT)
21	505-0185	1	Nipple, Pipe - Half (1/2" NPT x 1-1/2")	46	505-0172	1	Nipple, Pipe - Close (2" NPT)
22	505-0040	1	Elbow, Pipe - 90° (1/2" NPT)	47	504-0005	1	Cock, Drain
23	505-0100	1	Nipple, Pipe - Close (1/2" NPT)	48	154-0888	1	Manifold, Exhaust - Water Cooled
24	504-0028	1	Cock, Drain (3/8" NPT)	49	130-0785	1	Guard, Belt
				50	526-0030	2	Washer, Belt Guard Mounting (13/32 ID x 7/8 OD x 1/8" Thk)



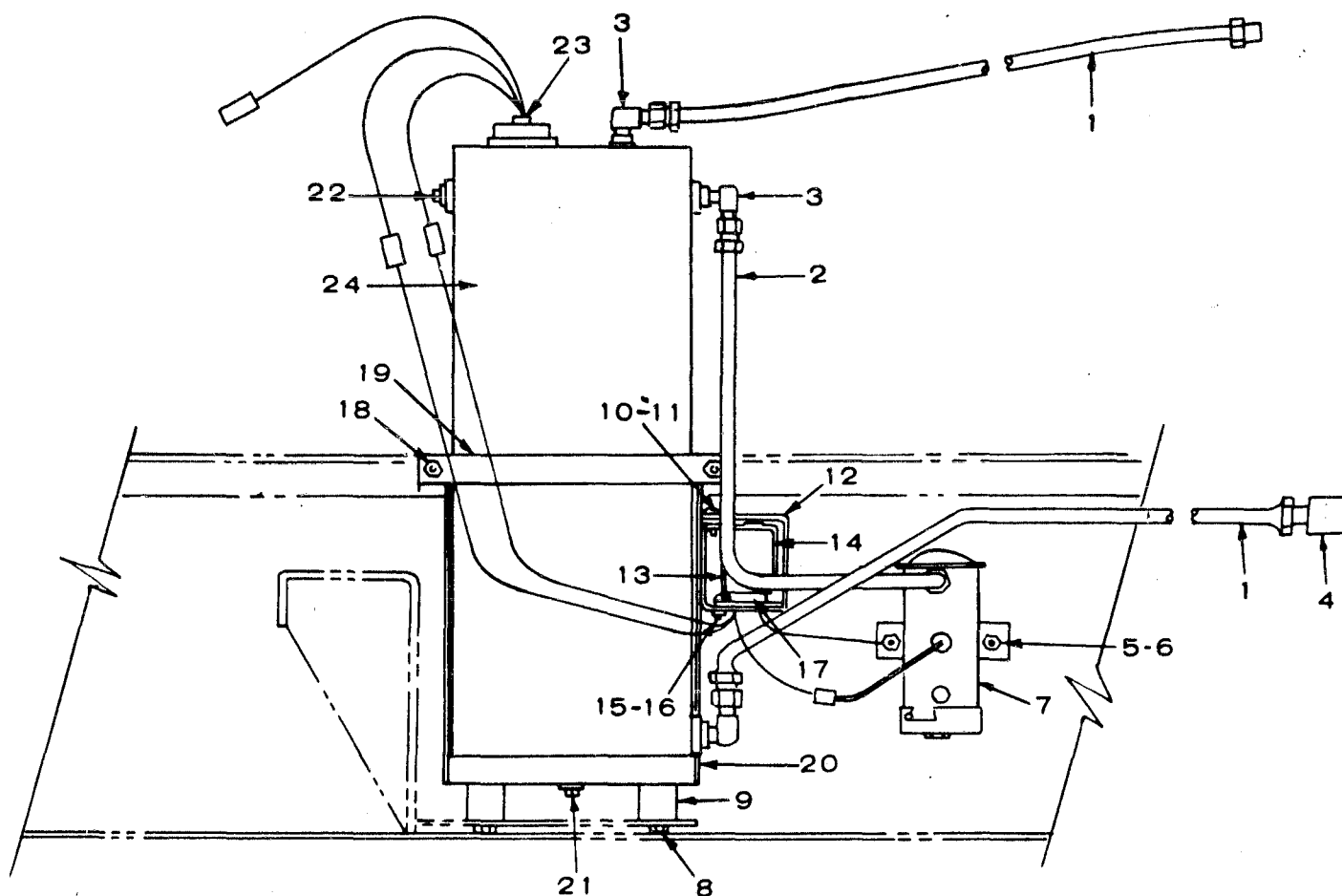
# **179-0264 INSTALLATION WATER COOLED EXHAUST MANIFOLD - OPTIONAL EQUIPMENT**



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0264		Installation of Water Cooled Exhaust Manifold
1	130-0674	1	Line Assembly, Water
2	502-0074	1	Elbow, Pipe - 90° (3/8 NPT)
3	502-0073	1	Elbow, Pipe - 90° (1/2 NPT)
4	503-0183	2	Clamp, Hose
5	503-0386	As Req.	Hose, Rubber (5/8" ID) - 30" Required
6	505-0135	2	Nipple, Pipe - Half (3/8" NPT x 1-1/2")
7	505-0120	1	Elbow, Pipe - 90°, Street (3/8" NPT)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
8	505-0019	1	Reducer, Pipe (1/2" NPT x 3/8" NPT)
9	505-0040	1	Elbow, Pipe - 90° (1/2" NPT)
10	505-0100	1	Nipple, Pipe - Close (1/2" NPT)
11	505-0175	1	Elbow, Pipe - 90° (2" NPT)
12	505-0172	1	Nipple, Pipe (2" NPT x 2" LG)
13	154-0888	1	Manifold, Exhaust - Water Cooled
14	505-0056	1	Plug, Square Head (1/2")

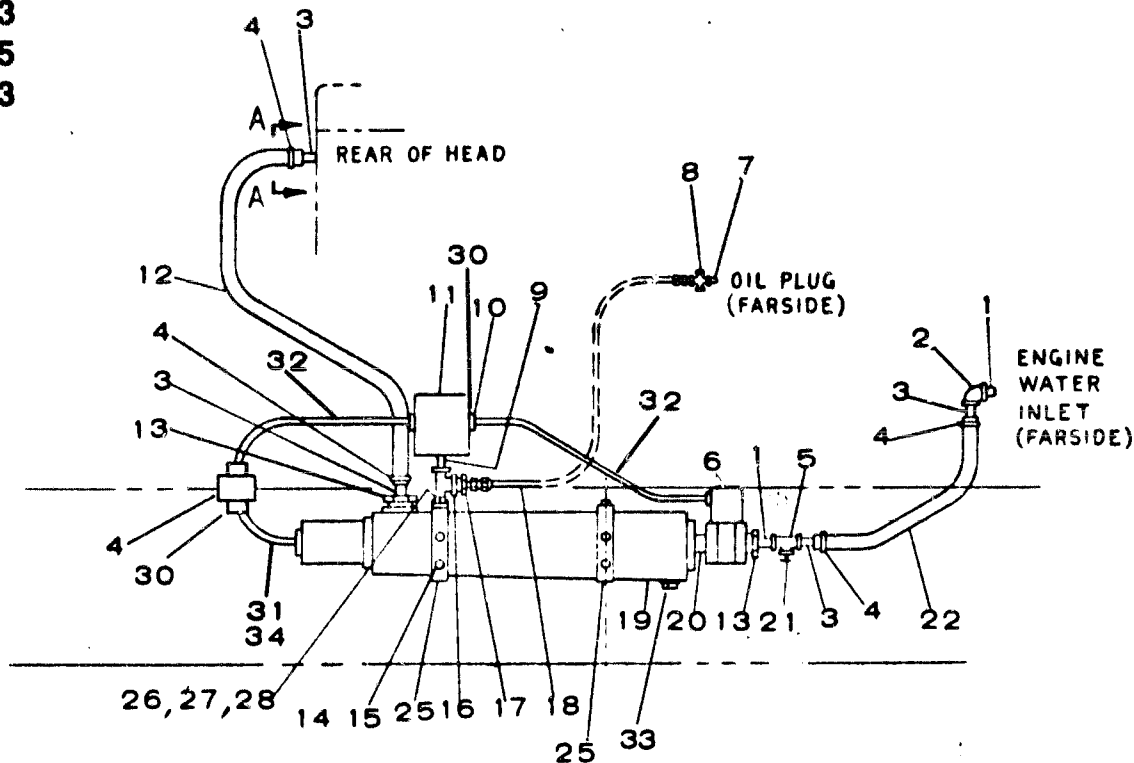
# 179-0441 INSTALLATION DAY FUEL TANK - OPTIONAL EQUIPMENT



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0441		Installation of Day Fuel Tank	11	850-0030	1	Washer, Lock - Spring (#10)
1	501-0008	2	Line, Fuel - Flexible	12	415-0326	1	Cover, Relay
2	501-0015	1	Line, Fuel - Flexible	13	307-1157	1	Spring, Retaining - Relay
3	502-0041	3	Elbow, Pipe - Street, Brass (1/4" x 1/4")	14	307-1058	1	Relay, Armature - 12 VDC
4	502-0051	1	Coupling, Pipe - Brass (1/4" x 1/4")	15	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
5	821-0018	2	Screw, Self-locking - Hex Head (1/4-20 x 5/8")	16	870-1183	2	Nut, Hex - With External Tooth Lockwasher (#6-32)
6	870-0212	2	Nut, Hex - Self-locking	17	323-0897	1	Socket, Relay (Includes Leads)
7	149-0554	1	Pump, Fuel - Electric (See Separate Group for Components)	18	821-0013	2	Screw, Self-locking - Hex Head (1/4-20 x 1")
8	821-0014	8	Screw, Self-locking - Hex Head (5/16-18 x 1/2")	19	415-0323	1	Strap, Retaining
9	402-0078	4	Mount, Vibration	20	415-0324	1	Bracket, Angle - Tank Support
10	813-0098	1	Screw, Machine - Round Head (#10-32 x 3/8")	21	505-0110	1	Plug, Pipe - Square Head (3/8")
				22	505-0054	1	Plug, Pipe - Square Head (1/4")
				23	415-0335	1	Switch, Float - Liquid Level
				24	415-0325	1	Tank, Fuel

# **OPTIONAL ENGINE COOLANT HEATER INSTALLATION PACKAGES**

179-2057  
179-2119  
179-2133  
179-2135  
179-2153

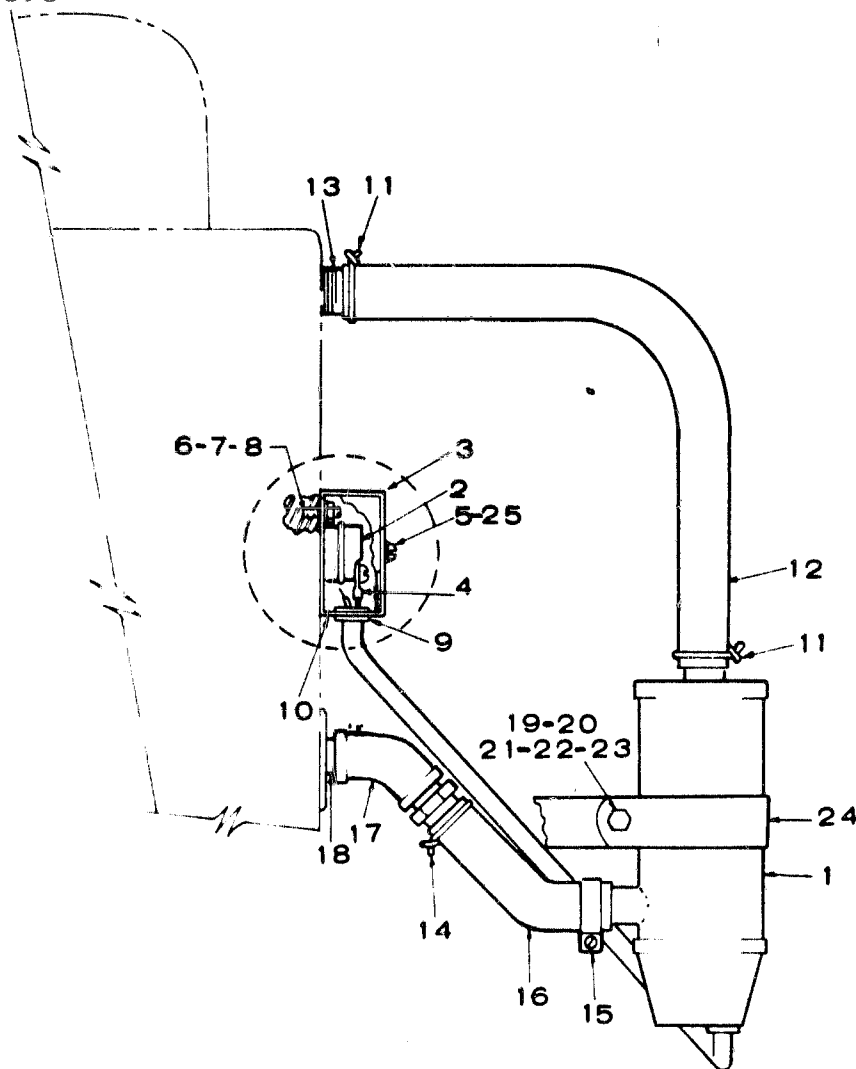


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-2057	1	115 Volt, 1 Phase	18	501-0225	1	Line, Flexible
	179-2119	1	208 Volt, 1 Phase	19	505-0101	2	Nipple, Pipe (3/8" x 1")
	179-2133	1	230 Volt, 1 Phase	20	505-0004	1	Nipple, Pipe (1" x 1-1/2")
	179-2135	1	480 Volt, 3 Phase	21	504-0028	1	Cock, Drain (3/8") (All Except 480 Volt, 3 Phase)
	179-2153	1	208 Volt, 3 Phase	22		As Req	Hose, Rubber (Bulk) (#503-0386) - 5/8" ID
1	HEATER, ENGINE COOLANT			23	332-0149	2	Terminal - NOT ILLUSTRATED (White Leads)
	333-0158	1	115 Volt, 1 Phase (2000 Watts)	24	323-0957	2	Connector - Wire Nut - NOT ILLUSTRATED (Black Leads)
	333-0167	1	208 Volt, 1 Phase (2000 Watts)	25	130-1192	2	Bracket, Water Heater Mounting
	333-0141	1	230 Volt, 1 Phase (2000 Watts)	26	800-0007	4	Screw, Cap - Hex Head (1/4-20 x 1" lg)
	333-0146	1	480 Volt, 3 Phase (2000 Watts)	27	850-0040	4	Washer, Lock Spring (1/4")
	333-0148	1	208 Volt, 3 Phase (2000 Watts)	28	862-0001	4	Nut, Hex (1/4-20)
2	309-0304	1	Switch, Thermostatic	29	503-0183	4	Clamp, Hose
3	309-0307	1	Switch, Oil Pressure	30	331-0027	4	Connector, Romex (3/8") (208 Volt, 3 Phase Only - Use 2 with 307-1460 Contactor)
4	CONTACTOR			31		As Req	Cable, 4 Conductor (Bulk) (#334-0143) (600 Volt) - Use with #333-0146, 480 Volt, 3 Phase Heater
	307-1164	1	480 Volt, 30 Amp, 3 Phase	32		As Req	Cord, 2 Conductor (Bulk) (#334-0130) (600 Volt) - Use with #333-0146, 480 Volt, 3 Phase Heater
	307-1460	1	208 Volt, 30 Amp, 3 Phase	33	504-0028	1	Cock, Drain (3/8") - 480 Volt, 3 Phase Only
5	505-0060	1	Tee, Pipe (3/8") (All Except 480 Volt, 3 Phase)	34		As Req	Cord, 2 Conductor (Bulk) (#334-0130) (600 Volt) - 208 Volt, 3 Phase Only
6	505-0039	1	Elbow (90° x 3/8")				
7	505-0098	1	Nipple, Pipe (1/8" x 3/4")				
8	505-0763	1	Cross, Pipe (3/8")				
9	505-0099	1	Nipple, Pipe (1/4" x 7/8")				
10	508-0008	2	Grommet, Rubber (All Except 480 Volt, 3 Phase)				
11	505-0135	4	Nipple, Half (3/8" x 1-1/2") (480 Volt, 3 Phase uses only 3)				
12		As Req	Hose, Rubber (Bulk) (#503-0386) 5/8" ID				
13	505-0455	2	Bushing, Reducer (1" x 3/8")				
14	821-0016	4	Screw, Cap - Locking Head (5/16-18 x 3/4" lg)				
15	870-0257	4	Nut, Hex - Self Locking (#5/16-18)				
16	333-0142	1	Support, Pressure Switch				
17	505-0007	1	Bushing, Reducer (1/4" x 1/8")				

# ENGINE COOLANT HEATER INSTALLATIONS

179-0180

179-0376



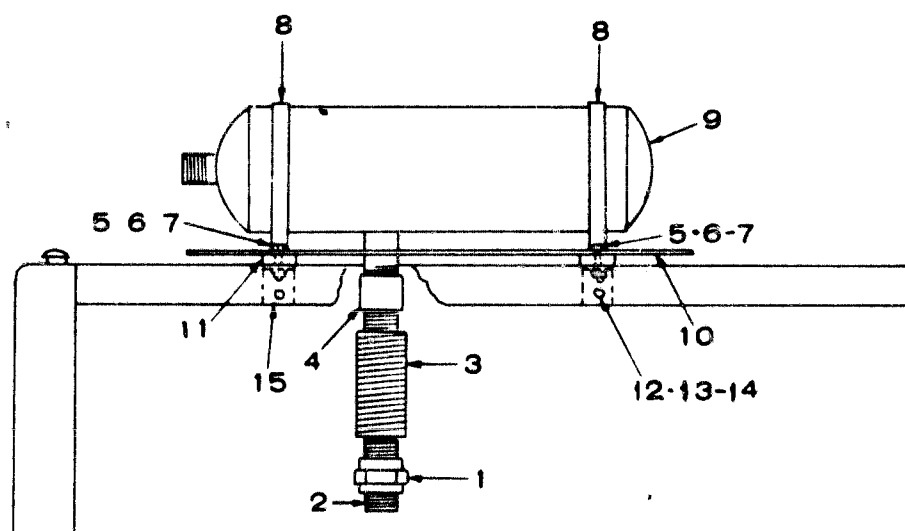
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0180	1	120 Volt
	179-0376	1	208, 240 Volt
1	HEATER, ENGINE COOLANT		
	333-0052	1	110 Volt, 1 Phase (1500 Watts)
	333-0073	1	220 Volt, 3 Phase (2000 Watts)
2	SWITCH, THERMOSTATIC		
	309-0106	1	120 Volt
	309-0256	1	208, 240 Volt
3	COVER, BOX - THERMOSTATIC		
	333-0013	1	120 Volt
	333-0056	1	208, 240 Volt
4	332-0149	1	Terminal, Lug
5	812-0076	2	Screw, Machine - Round Head (#8-32 x 5/16")
6	STUD		
	520-0446	2	120 Volt (#10-32 x 3/4")
	332-0672	2	208, 240 Volt (Brass - 3/16 x 1")
7	850-0030	2	Washer, Lock - Spring (#10)
8	870-0053	2	Nut, Hex (#10-32)
9	508-0008	1	Grommet, Rubber

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
10	BOX, THERMOSTATIC SWITCH		
	333-0012	1	120 Volt
	333-0057	1	208, 240 Volt
11	503-0197	2	Clamp, Hose
12	503-0832	1	Hose, Rubber (5/8" ID x 12")
13	505-0135	1	Nipple, Pipe - Half (3/8" NPT x 1-1/2")
14	503-0197	1	Clamp, Hose
15	503-0183	1	Clamp, Hose
16	503-0833	1	Hose, Rubber (5/8" ID x 24")
17	505-0112	1	Elbow, Pipe - 45° (1/4" NPT)
18	505-0071	1	Nipple, Pipe (1/4" NPT x 2")
19	800-0030	1	Screw, Cap - Hex Head (5/16-18 x 1-1/4")
20	850-0045	1	Washer, Lock - Spring (5/16")
21	526-0030	2	Washer, Flat (13/32" ID x 7/8" OD x 1/8" Thk) - 120 Volt Only
22	856-0008	2	Washer, Lock - External/Internal Tooth (5/16") - 120 Volt Only
23	862-0015	1	Nut, Hex (5/16-18)
24	130-0755	1	Bracket, Support - Water Heater
25	850-0025	2	Washer, Lock - Spring (#8)

978-0220 (JUNE 1980)

# **OPTIONAL INSTALLATION EXHAUST MUFFLER (WATER COOLED MANIFOLD)**

**179-1529**



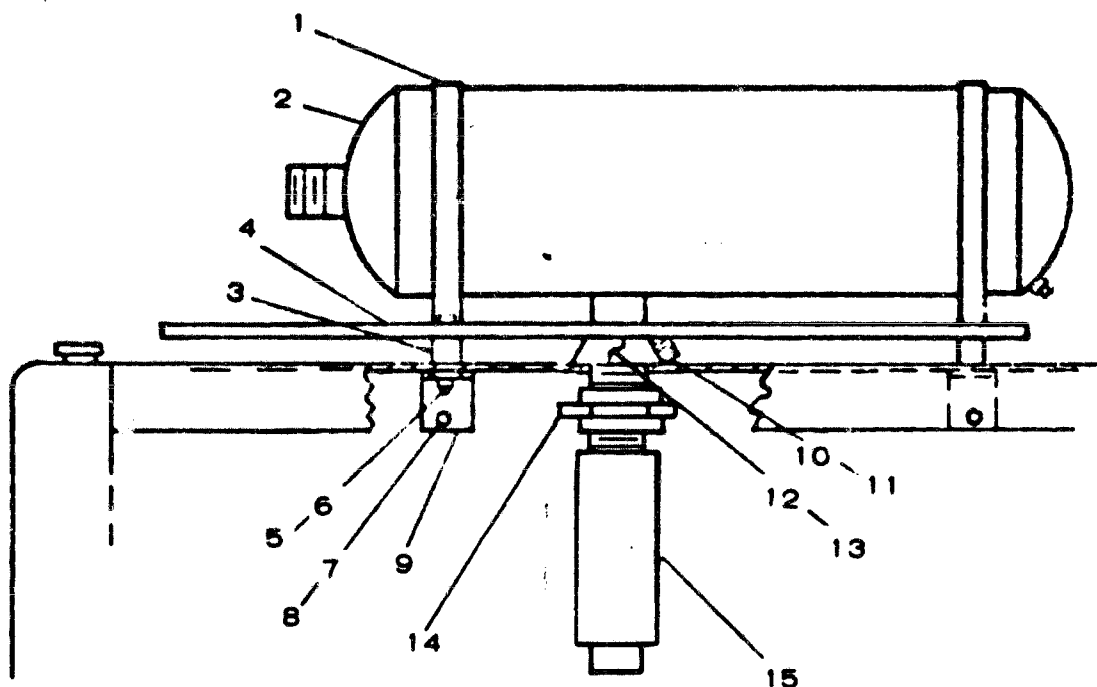
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-1529		Installation of Exhaust Muffler
1	505-0454	1	Union, Pipe (2")
2	505-0645	1	Nipple, Pipe (Close - 2" x 3")
3	155-1082	1	Pipe, Exhaust - Flexible
4	505-0203	1	Coupling, Pipe (2")
5	800-0028	4	Screw, Cap - Hex Head (5/16-18 x 1")
6	850-0045	4	Washer, Lock - Spring (5/16")
7	862-0015	4	Nut, Hex (5/16-18)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
8	140-0649	2	Strap, Retaining
9	155-0988	1	Muffler, Exhaust
10	155-1340	1	Heat Shield
11	526-0172	4	Washer, Flat (1/2" ID x 2-1/4" OD x 1/4" Thk)
12	800-0026	6	Screw, Cap - Hex Head (5/16-18 x 3/4")
13	850-0045	6	Washer, Lock - Spring (5/16")
14	862-0015	6	Nut, Hex (5/16-18)
15	155-0789	2	Support - Muffler

# **OPTIONAL** **INSTALLATION EXHAUST MUFFLER (HOUSED SETS AND CRITICAL)**

179-0368

179-1569



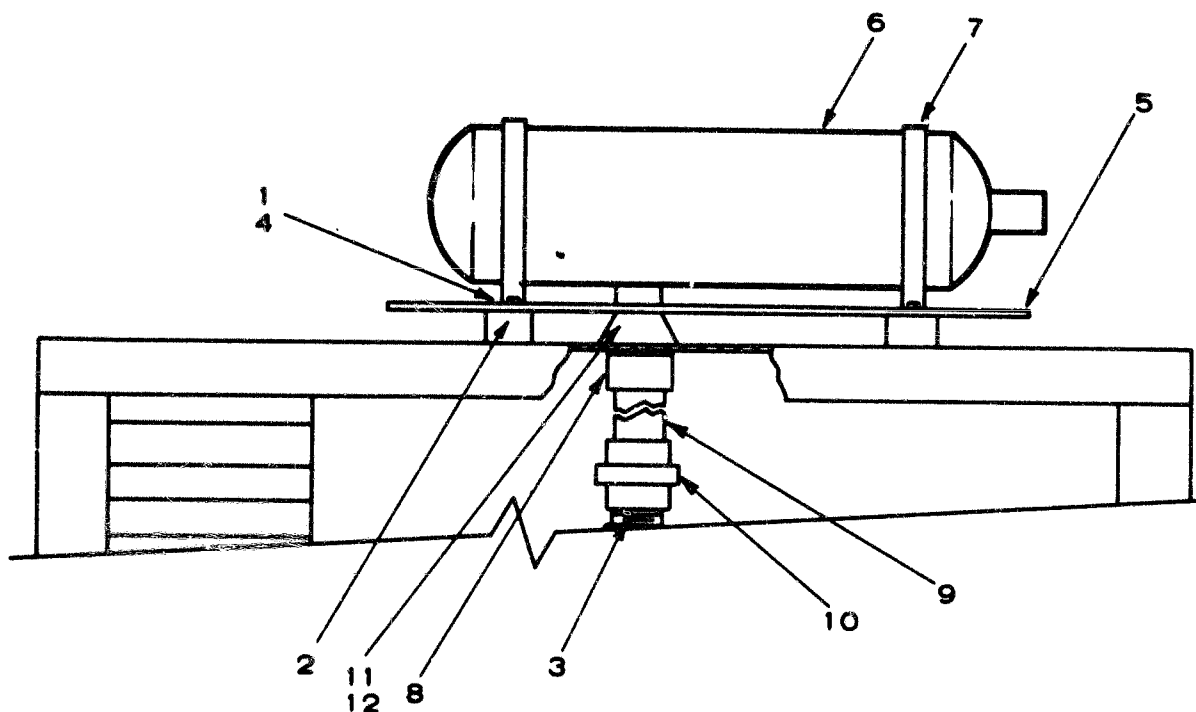
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	BAND, MUFFLER		
	140-0649	2	Housed Sets
	140-0752	2	Critical Sets
2	MUFFLER, EXHAUST		
	155-1268	1	Housed Sets
	155-1614	1	Critical Sets
3	155-1430	4	Spacer, Muffler
4	SHIELD, HEAT		
	155-0978	1	Housed Sets
	155-1622	1	Critical Sets
5	800-0037	4	Screw, Cap - Hex Head (5/16-18 x 3" lg)
6	862-0015	4	Nut, Lock (5/16-18)
7	800-0026	6	Screw, Cap - Hex Head (5/16-18 x 3/4" lg)
8	862-0015	6	Nut, Lock (5/16-18)
9	155-0789	2	Bracket, Muffler Support
10	813-0105	2	Screw, Machine - Round Head (#10-32 x 1" lg)
11	870-0188	2	Nut, Lock (#10-32)
12	155-1420	1	Shield, Rain
13	895-0157	1	Asbestos
14	505-0454	1	Union, Pipe (2")
15	155-1591	1	Tube, Exhaust (9" lg)

**NOTE:** To Order All Parts Listed for Conversion,  
Order by #179-0368 or #179-1569.

978-0220 (JUNE 1960)

# **OPTIONAL INSTALLATION EXHAUST MUFFLER (OUTDOOR HOUSING)**

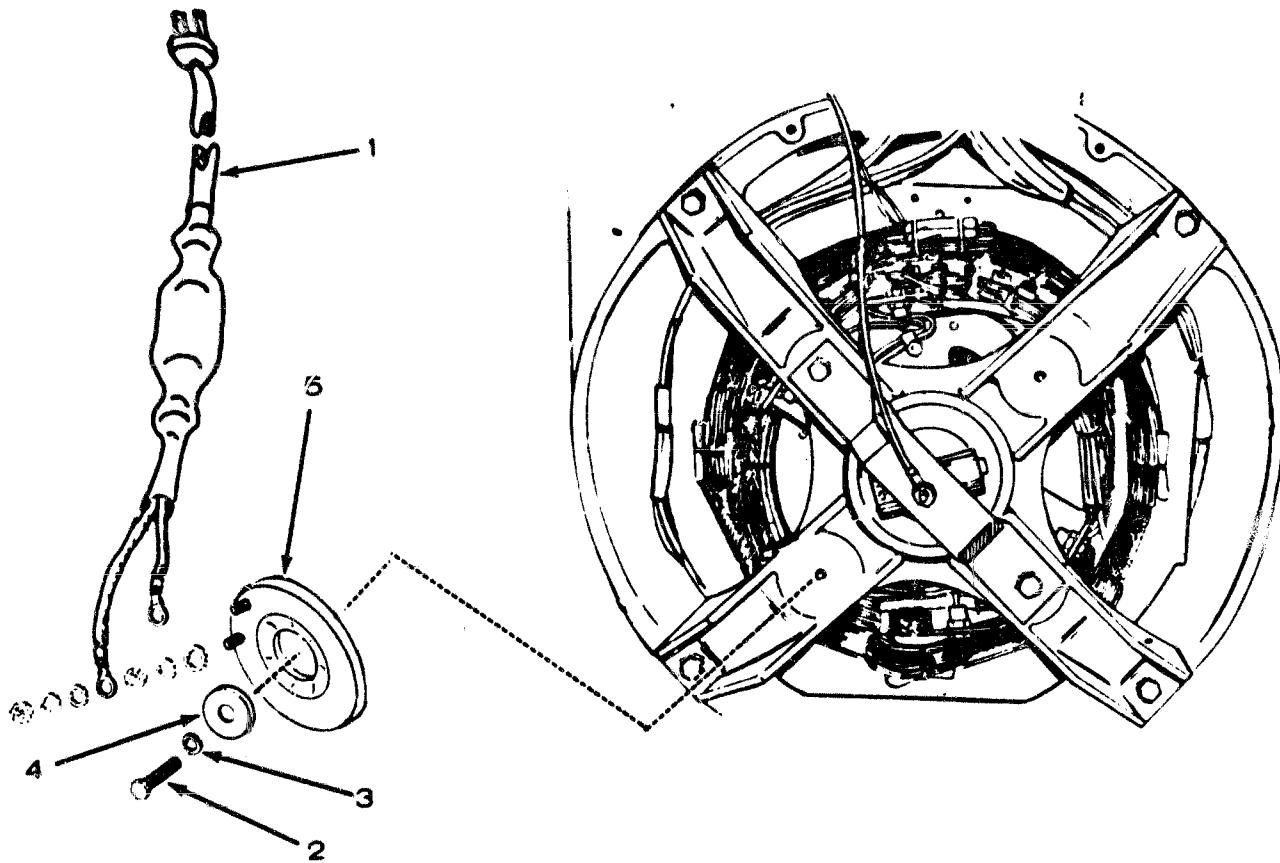
179-1538



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0508	4	Screw, Hex Head Cap (5/16-18 x 2-3/4)
2	155-1430	4	Spacer, Muffler
3	5-0172	1	Nipple - Close (2")
4	862-0015	4	Nut, Self Locking (5/16-18)
5	155-1278	1	Heat Shield - Muffler
6	155-0988	1	Muffler
7	140-0649	2	Band
8	505-0203	1	Coupling (2")
9	155-1589	1	Tube Assembly - Exhaust
10	505-0454	1	Union (2")
11	155-1420	1	Shield - Rain (2" NPT)
12	895-0157	1	Asbestos (10 x 2 x 1/16)

# **OPTIONAL GENERATOR HEATER INSTALLATION**

**179-0369**

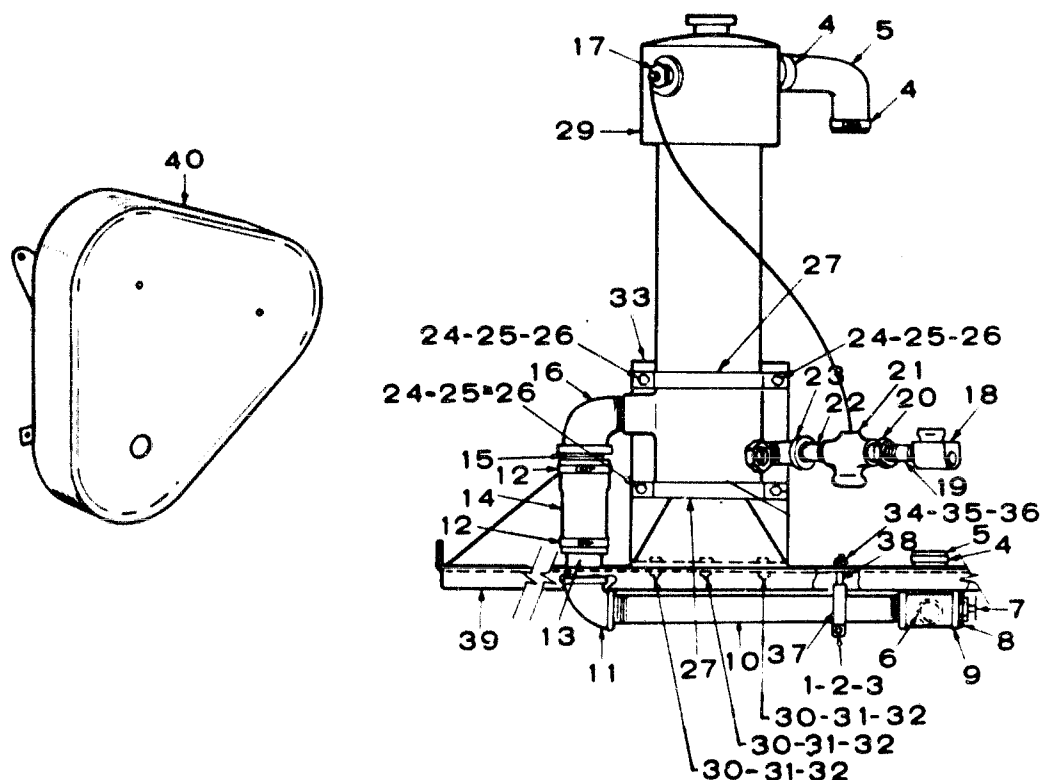


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0369	1	Heater Installation, Generator - Complete
1		1	Cable Assembly (Includes Thermostat)
2	800-0004	1	Screw, Cap - Hex Head (1/4-20 x 5/8")
3	850-0038	1	Washer, Lock - Spring (1/4")
4	526-0158	1	Washer, Flat (.261" ID x 1" OD x 1/8" Thk)
5	333-0059	1	Heater - 120 Volt, 125 Watt



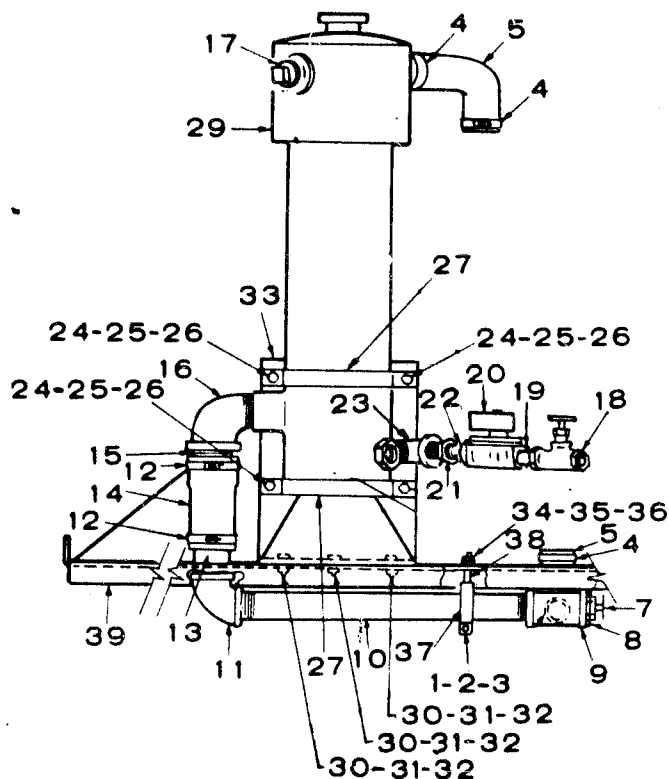
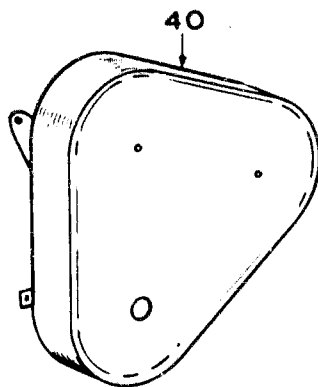
# REGULATOR - OPTIONAL EQUIPMENT

179-0388



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0388		Installation of Heat Exchanger with Regulator	20	505-0021	1	Reducer, Pipe (3/4" NPT x 1/2" NPT)
1	800-0004	1	Screw, Cap - Hex Head (1-4-20 x 5/8")	21	309-0241	1	Valve, Regulator
2	850-0040	1	Washer, Lock - Spring (1/4")	22	505-0102	1	Nipple, Pipe - Close (3/4" NPT)
3	862-0001	1	Nut, Hex (1/4-20)	23	505-0691	1	Elbow, Pipe - Street, 45° (3/4" NPT)
4	503-0311	4	Clamp, Hose	24	800-0004	4	Screw, Cap - Hex Head (1/4-20 x 5/8")
5	503-0441	2	Hose, Rubber (Premolded) - 1-3/4" ID	25	850-0040	4	Washer, Lock - Spring (1/4")
6	505-0628	1	Nipple, Pipe - Half (1-1/2" NPT x 3")	26	862-0001	4	Nut, Hex (1/4-20)
7	504-0003	1	Cock, Drain (1/4" NPT)	27	130-0802	2	Strap, Retaining
8	505-0426	1	Reducer, Pipe (1-1/2" NPT x 1/4" NPT)	28	504-0005	1	Cock, Drain (1/8" NPT)
9	505-0317	1	Tee, Pipe (1-1/2" NPT)	29	130-0796	1	Tank, Heat Exchanger
10	505-0424	1	Nipple, Pipe (1-1/2" NPT x 16-1/2")	30	800-0026	7	Screw, Cap - Hex Head (5/16-18 x 3/4")
11	505-0043	1	Elbow, Pipe - 90° (1-1/2" NPT)	31	850-0045	7	Washer, Lock - Spring (5/16")
12	503-0311	2	Clamp, Hose	32	862-0015	7	Nut, Hex (5/16-18)
13	505-0628	1	Nipple, Pipe - Half (1-1/2" NPT x 3")	33	130-0819	1	Bracket, Mounting - Heat Exchanger
14	503-0356	As Req	Hose, Rubber (1-3/4" ID) - 8" Required	34	800-0012	1	Screw, Cap - Hex Head (1/4-20 x 2-1/4")
15	505-0444	1	Nipple, Pipe - Half (1-1/2" NPT x 2-1/4")	35	850-0040	1	Washer, Lock - Spring (1/4")
16	505-0462	1	Elbow, Pipe - Street, 90° (1-1/2" NPT)	36	862-0001	1	Nut, Hex (1/4-20)
17	505-0129	1	Reducer, Pipe (1" NPT x 3/4" NPT)	37	331-0142	1	Hanger, Pipe
18	307-0833	1	Valve, Solenoid	38	232-1197	1	Spacer, Sleeve (1-11/16" lg)
19	505-0100	1	Nipple, Pipe (1/2" NPT x 1-1/8")	39	130-0828	1	Bracket, Support - Heat Exchanger
				40	130-0785	1	Guard, Belt

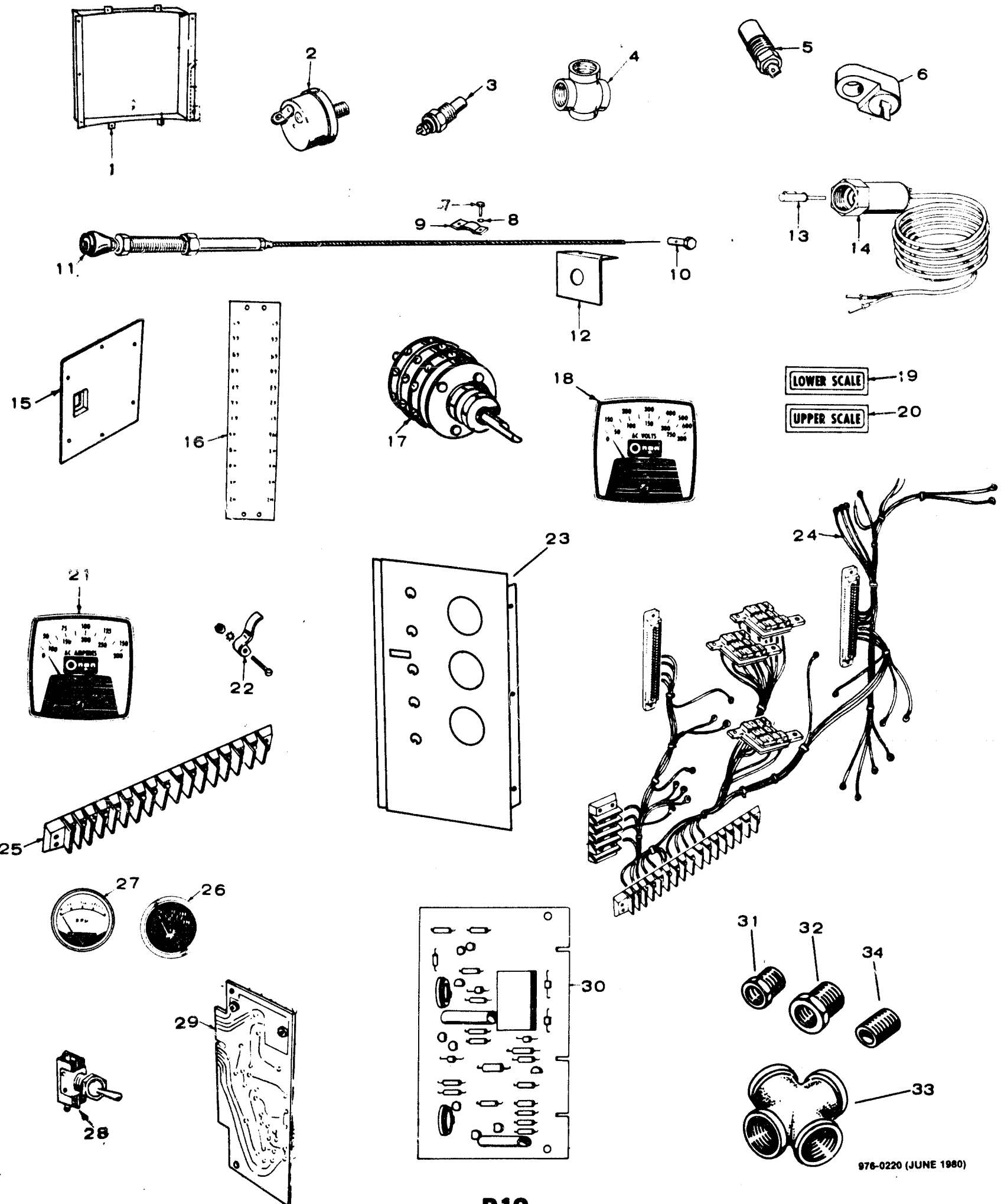
# 179-0371 INSTALLATION HEAT EXCHANGER COOLING - OPTIONAL EQUIPMENT



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0371		Installation of Heat Exchanger
1	800-0004	1	Screw, Cap - Hex Head (1/4-20 x 5/8")
2	850-0040	1	Washer, Lock - Spring (1/4")
3	862-0001	1	Nut, Hex (1/4-20)
4	503-0311	4	Clamp, Hose
5	503-0441	2	Hose, Rubber (Premolded) - 1-3/4" ID
7	504-0003	1	Cock, Drain (1/4" NPT)
8	505-0426	1	Reducer, Pipe (1-1/2" NPT x 1/4" NPT)
9	505-0317	1	Tee, Pipe (1-1/2" NPT)
10	505-0424	1	Nipple, Pipe (1-1/2" NPT x 16-1/2")
11	505-0043	1	Elbow, Pipe - 90° (1-1/2" NPT)
12	503-0311	2	Clamp, Hose
13	505-0628	1	Nipple, Pipe - Half (1-1/2" NPT x 3")
14	503-0356	As Req.	Hose, Rubber (1-3/4" ID) - 8" Required
15	505-0444	2	Nipple, Pipe - Half (1-1/2" NPT x 2-1/4")
16	505-0462	1	Elbow, Pipe - Street, 90° (1-1/2" NPT)
17	505-0140	1	Plug, Pipe (1" NPT)
18	504-0019	1	Valve, Globe

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
19	505-0100	1	Nipple, Pipe (1/2" NPT x 1-1/8")
20	307-0833	1	Valve, Solenoid
21	505-0100	1	Nipple, Pipe (1/2" NPT x 1-1/8")
22	505-0021	1	Reducer, Pipe (3/4" NPT x 1/2" NPT)
23	505-0691	1	Elbow, Pipe - Street, 45° (3/4" NPT)
24	800-0004	4	Screw, Cap - Hex Head (1/4-20 x 5/8")
25	850-0040	4	Washer, Lock - Spring (1/4")
26	862-0001	4	Nut, Hex (1/4-20)
27	130-0802	2	Strap, Retaining
29	130-0796	1	Tank, Heat Exchanger
30	800-0026	3	Screw, Cap - Hex Head (5/16-18 x 3/4")
31	850-0045	3	Washer, Lock - Spring (5/16")
32	862-0015	3	Nut, Hex (5/16-18)
33	130-0819	1	Bracket, Mounting - Heat Exchanger
34	800-0012	1	Screw, Cap - Hex Head (1/4-20 x 2-1/4")
35	850-0040	1	Washer, Lock - Spring (1/4")
36	862-0001	1	Nut, Hex (1/4-20)
37	331-0142	1	Hanger, Pipe
38	232-1197	1	Spacer, Sleeve (1-11/16" lg)
39	130-0805	1	Bracket, Support - Heat Exchanger
40	130-0785	1	Guard, Belt

# MISCELLANEOUS OPTIONS



976-0220 (JUNE 1980)

## MISCELLANEOUS OPTIONS

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	405-1054	1	Flange, Duct (Penn State)
2	309-0064	1	Switch, Low Oil Pressure Shutdown (Penn State)
3	SENDER, WATER TEMPERATURE		
	193-0104	1	Spec B through G
	193-0246	1	Begin Spec H
4	505-0763	1	Cross, Pipe (1/8")
5	309-0178	1	Switch, High Water Temperature Alarm (Penn State)
6	309-0269	1	Switch, Low Engine Temperature (Penn State)
	VERNIER THROTTLE ASSEMBLY (Includes Parts Marked +)		
7	815-0104	2	+Screw, Machine - Fillister Head (#8-32 x 5/16")
8	526-0052	2	+Washer, Flat - Brass (17/64 ID x 9/16 OD x 1/32" Thk)
9	152-0036	1	+Clamp, Cable
10	152-0158	1	+Swivel
11	152-0120	1	+Cable, Throttle
12	151-0230	1	+Bracket, Angle - Throttle Mounting
13	302-0967	1	Tang, Drive (Tach Sender)
14	302-0750	1	Sender, Tach
15	301-3192	1	Panel, Circuit Breaker - Right Side (Used with Line Load Circuit Breaker)
16	332-1242	1	Strip, Marker (16 Place)
17	308-0284	1	Switch, Rotary - 4 Pole, 4 Position
18	VOLTMETER		
	302-0421	1	0-300 Volt
	302-0718	1	0-300 Volt, 0-600 Volt
	302-0779	1	0-750 Volt
	LIGHT, INDICATOR		
19	322-0130	1	Lower Scale
20	322-0131	1	Upper Scale
21	302-0412	2	Ammeter (0-250)
22	320-0307	1	Lock, Handle - Circuit Breaker (Penn State Sets)
23	301-3267	1	Panel Only, Engine Control (Sets with Five Fault Lights)
24	338-0534	1	Harness Assembly, Wiring - Control (Sets with Five Fault Lights)
25	332-0795	1	Board, Terminal (16 Place)
26	GAUGE, OIL TEMPERATURE		
	193-0187	1	Spec B through G
	193-0248	1	Begin Spec H
27	302-0749	1	Tachometer, Electrical
28	308-0327	1	Switch, Toggle (SPDT) - Penn State
29	300-0714	1	Control, Cycle Cranker
30	300-0730	1	Control, Engine Monitor (Penn State) (+See Separate Group for Components)
	VENT AND CROSS ASSEMBLY (PENN STATE) (Includes Parts Marked *)		
31	504-0028	1	*Cock, Drain (3/8")
32	505-0019	4	*Bushing, Reducer (1/2 x 3/8")
33	505-0708	1	*Cross, Pipe (1/2")
34	505-0101	1	*Nipple, Close (3/8 x 1")